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GEOCHEMICAL CHARACTERIZATION OF BACKGROUND SURFACE SOILS: BACKGROUND SOILS CHARACTERIZATION PROGRAM

Rocky Flats Environmental Technology Site

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

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EG&G Rocky Flats, Inc.
Golden, Colorado

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U.S. Department of Energy
Rocky Flats Environmental Technology Site
Golden, Colorado 80401

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ACRONYMS AND ABBREVIATIONS

AAS	atomic absorption spectroscopy
ANOVA	analysis of variance
ARARs	Applicable or Relevant and Appropriate Requirements
ASTM	American Society for Testing and Materials
Bq/kg	Bequerels per kilogram
BSCP	Background Soils Characterization Program
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
Ci	curie
CLP	Contract Laboratory Program
cm	centimeters
COC	Chain of Custody
CRDL	contract required detection limits
DOE	U.S. Department of Energy
DQO	Data Quality Objectives
EDA	exploratory data analysis
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
°F	degrees Fahrenheit
GIS	Geographic Information System
GPS	Global Positioning System
GRRASP	General Radiochemistry and Routine Analytical Services Protocol
ha	hectares
HF	hydrofluoric acid
IAG	Interagency Agreement
ICP	inductively coupled plasma emission spectroscopy
IDL	instrument detection limit
in	inches

km	kilometers
LANL	Los Alamos National Laboratory
m	meters
m/s	meters per second
MDA	minimum detection activity
MDL	method detection limit
mi	miles
mph	miles per hour
NPL	National Priorities List
NTS	Nevada Test Site
OES	optical emission spectroscopy
OU	Operable Unit
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCB	polychlorinated biphenyls
PPRG	programmatic preliminary remediation goal
pCi/g	picoCuries per gram
QA	Quality Assurance
QAPjP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RF	Rocky Flats
RFEDS	Rocky Flats Environmental Database System
RFETS	Rocky Flats Environmental Technology Site
RFI	RCRA Facility Investigation
RFP	Rocky Flats Plant
RI	Remedial Investigation
RPD	Relative Percent Differences
SCS	Soil Conservation Service
SVOC	semivolatile organic compound
TAL	Total Analyte List

TCL	Target Compound List
TIMS	Thermal Ionization Mass Spectrometry
TOC	Total Organic Carbon
UHSU	upper hydrostratigraphic unit
USDA	United States Department of Agriculture
UTL	upper tolerance limit
XRF	x-ray fluorescence

EXECUTIVE SUMMARY

TABLES

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TABLE E-1

SUMMARY STATISTICS FOR BSCP GROUP 1 ANALYTES: METALS AND NATURALLY OCCURRING RADIONUCLIDES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	Tol Fact	99/99 UTL[a]	Units
Aluminum	Normal	20	0	4050	17100	10244	3329	3.8316	22999	mg/kg
Antimony	X	20	96	.19U	0.47	X	X	3.8316	X	mg/kg
Arsenic	Normal	20	0	2.3	9.6	6.09	2	3.8316	13.75	mg/kg
Barium	Normal	20	0	45.7	134	102.4	19.43	3.8316	176	mg/kg
Beryllium	Normal	20	0	0.24	0.9	0.66	0.153	3.8316	1.25	mg/kg
Cadmium	Nonparam	20	39	.295U	2.3	0.714	0.449	3.8316	2.335	mg/kg
Calcium	Normal	20	0	1450	4550	2969	749	3.8316	5839	mg/kg
Cesium	X	20	100	6.05U	7U	X	X	3.8316	X	mg/kg
Chromium	Normal	20	0	5.5	16.9	11.29	2.85	3.8316	22.21	mg/kg
Cobalt	Normal	20	0	3.4	11.2	7.29	1.81	3.8316	14.22	mg/kg
Copper	Nonparam	20	0	5.2	15.85	12.94	2.56	3.8316	22.75	mg/kg
Iron	Normal	20	0	7390	18100	12549	2744	3.8316	23063	mg/kg
Lead	Normal	20	0	8.6	53.3	33.6	10.51	3.8316	73.87	mg/kg
Lithium	Lognormal	20	0	4.8	11.6	7.69	1.93	3.8316	15.08	mg/kg
Magnesium	Lognormal	20	0	1310	2800	1913.1	468.1	3.8316	3707	mg/kg
Manganese	Normal	20	0	129	357	237.3	63.89	3.8316	482.1	mg/kg
Mercury	Lognormal	20	65	.04U	0.12	0.072	0.031	3.8316	0.191	mg/kg
Molybdenum	X	20	91	.29U	0.9U	X	X	3.8316	X	mg/kg
Nickel	Normal	20	0	3.8	14	9.63	2.64	3.8316	19.74	mg/kg
Potassium	Normal	20	0	1110	2830	2061.2	453	3.8316	3797	mg/kg
Selenium	Nonparam	20	39	.29U	1.4	0.634	0.295	3.8316	1.76	mg/kg
Silicon	Normal	20	0	934	1650	1383.5	179	3.8316	2069	mg/kg
Silver	X	20	100	.19U	.22U	X	X	3.8316	X	mg/kg
Sodium	Lognormal	20	0	43.8	105	62.16	14.84	3.8316	119.02	mg/kg
Strontium	Lognormal	20	0	9.6	45.2	28.44	10.25	3.8316	67.92	mg/kg
Thallium	X	14*	100	.385U	.445U	X	X	4.2224	X	mg/kg
Tin	X	20	91	1.35U	2.9	X	X	3.8316	X	mg/kg
Vanadium	Normal	20	0	10.8	45.8	27.85	8.87	3.8316	61.84	mg/kg
Zinc	Normal	20	0	21.1	75.9	49.56	12.1	3.8316	95.92	mg/kg
Radium-226	Lognormal	20	0	0.1	0.805	0.619	0.153	3.8316	1.20	pCi/g
Radium-228	Normal	20	0	0.2	2.3	1.35	0.48	3.8316	3.189	pCi/g
Uranium-233/234	Lognormal	20	0	0.6	3.1	1.097	0.578	3.8316	3.31	pCi/g
Uranium-235	Lognormal	20	0	0.11	0.34	0.0539	0.02	3.8316	0.13	pCi/g
Uranium-238	Lognormal	20	0	0.74	2.6	1.09	0.455	3.8316	2.83	pCi/g

a = All UTLs calculated assuming a normal distribution.
X = Not applicable because > 80% of data were non-detects.
% Non-detects are calculated from all accepted valid data except equipment rinsates.
Min and Max values: lowest/highest detected value or, if no detected values, 1/2 IDL followed by U.
Uranium-238 had 2 outliers removed for calculation of UTL; outliers retained for summary statistics.
* Six thallium samples were rejected during the validation process.

TABLE E-2

SUMMARY STATISTICS FOR BSCP GROUP 1 ANALYTES: SUPPORTING DATA TYPES

Analyte	Distri-bution	Count (n)	% Non-Detect	Min	Max	99/99 UTL	Mean	Standard Deviation	Units
Ammonia	Normal*	20	39	0.5U	7	NC	2.0333	1.8977	mg/kg
Carbonate	Normal*	20	100	5U	5.5U	NC	X	X	mg/kg
Nitrate/Nitrite	Normal*	20	0	2	7	NC	4	1.6859	mg/kg
Oil & Grease	Normal*	20	0	52	130	NC	94.575	19.325	mg/kg
pH	Normal*	20	NA	6	6.8	NC	6.3575	0.2424	pH
Specific Cond.	Normal*	20	NA	0.1	0.53	NC	0.2083	0.0896	mmhos/cm
TOC	Normal*	20	0	4920	17600	NC	16133	2696.9	mg/kg
% Clay	Normal*	20	0	7	36	NC	20.45	8.62	%
% Sand	Normal*	20	0	22	76	NC	43.93	15.27	%
% Silt	Normal*	20	0	18	45.5	NC	35.76	7.52	%
Bulk Density	Normal*	20	0	0.9	1.2	NC	0.923	0.07	g/cm^3

Normal* : Distribution assumed to be normal for summary statistics of supporting data
NC = Not calculated
TOC = Total Organic Carbon
Min and Max Values: lowest/highest value detected if no detached values, 1/2 IDL followed by U.
X = Not applicable because greater than 80% were non-detects.

TABLE E-3

SUMMARY STATISTICS FOR BSCP GROUP 2 ANALYTES: FALLOUT RADIONUCLIDES AND SUPPORTING DATA

Analyte	Distri-bution	Count (n)	% Non-Detect	Min	Max	Tol Fact	99/99 UTL	Mean	S.D.	Units
Fallout Radionuclides										
Americium-241	Nonparam	50	0	0.001	0.025	3.1369	0.037	0.0107	0.006	pCi/g
Cesium-134	Nonparam	50	0	0.05	0.3	3.1369	0.369	0.2	0.056	pCi/g
Cesium-137	Lognormal	50	0	0.3	1.7	3.1369	2.25	0.941	0.372	pCi/g
Plutonium-239/240	Lognormal	50	0	0.017	0.072	3.1369	0.084	0.038	0.014	pCi/g
Strontium-89/90	Lognormal	50	0	0.065	0.64	3.1369	0.708	0.254	0.128	pCi/g
Supporting Data										
% Clay	Normal*	50	0	1	34	X	X	11.58	6.37	%
% Sand	Normal*	50	0	24	78	X	X	53.29	11.97	%
% Silt	Normal*	50	0	20	51	X	X	35.21	7.49	%
Soil density	Normal*	50	0	0.8	1.2	X	X	0.944	0.78	g/cm^3
Total Organic Carbon	Normal*	50	0	1.4	6.05	X	X	3.66	1.24	%

X = Not calculated or not applicable
Normal*: Distribution assumed normal for summary statistics of supporting data
S.D. = standard deviation

TABLE E-4

SUMMARY STATISTICS FOR ROCK CREEK GROUP 1 ANALYTES: METALS AND NATURALLY OCCURRING RADIONUCLIDES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	Tol Factor	99/99 UTL[a]	Units
Aluminum	Lognormal	18	0	8550	17950	12993	2251.5	3.9604	21910	mg/kg
Antimony	X	18	100	4.2U	7.3U	X	X	3.9604	X	mg/kg
Arsenic	Normal	18	0	2.1	8.5	5.82	1.81	3.9604	12.86	mg/kg
Barium	Nonparam	18	0	120	470	195	84.58	3.9604	481.1	mg/kg
Beryllium	Lognormal	18	43	0.44	1.1	0.681	0.119	3.9604	1.1523	mg/kg
Cadmium	Nonparam	17	71	0.3U	1.8	0.732	0.434	4.0367	2.45	mg/kg
Calcium	Lognormal	18	0	2260	8810	5068.1	2220.5	3.9604	13862	mg/kg
**Cesium	Lognormal	18	48	.225U	75U	31.29	30.13	3.9604	831.6	mg/kg
Chromium	Normal	18	0	10.5	20.2	15.029	2.476	3.9604	24.85	mg/kg
*Cobalt	Lognormal	18	0	4.4	24	7.778	4.308	3.9604	24.839	mg/kg
Copper	Normal	18	0	7.7	18.45	12.964	3.629	3.9604	27.34	mg/kg
Iron	Lognormal	18	0	10400	24900	15382	3226.6	3.9604	28160	mg/kg
Lead	Lognormal	18	0	29.35	51	37.535	6.024	3.9604	61.392	mg/kg
Lithium	Normal	18	0	7.1	14.95	10.981	2.273	3.9604	19.97	mg/kg
Magnesium	Lognormal	18	0	1440	5195	2853.3	1050	3.9604	7011.6	mg/kg
*Manganese	Lognormal	18	0	188.5	2220	443.6	457.04	4.1233	2328.1	mg/kg
Mercury	X	18	96	0.03U	0.075U	X	X	3.9604	X	mg/kg
Molybdenum	X	18	96	0.7U	2.7	X	X	3.9604	X	mg/kg
Nickel	Normal	18	0	7.8	18.7	12.578	3.588	3.9604	26.8	mg/kg
Potassium	Normal	18	0	1950	4205	2977.9	575.43	3.9604	5157	mg/kg
Selenium	Normal	18	22	0.105U	0.76	0.43	0.196	3.9604	1.21	mg/kg
**Silicon	Nonparam	18	0	54.8	1845	780.96	700.48	3.9604	8180	mg/kg
Silver	X	18	100	0.5U	1.45U	X	X	3.9604	X	mg/kg
Sodium	Lognormal	18	43	56.9	192.5	115.37	33.658	3.9604	248.67	mg/kg
Strontium	Lognormal	18	0	20.9	79.05	35.335	13.821	3.9604	90.072	mg/kg
Thallium	Normal	18	65	0.105U	0.41	0.23	0.084	3.9604	0.563	mg/kg
Tin	X	18	39	10.75U	58.5	32.541	12.936	3.9604	83.79	mg/kg
Vanadium	Normal	18	0	20.95	45.6	31.603	60.49	3.9604	55.56	mg/kg
Zinc	Lognormal	18	0	41.4	70.58	55.818	7.784	3.9604	86.646	mg/kg
Radium-226	Lognormal	10	0	0.75	1.1	0.945	0.128	5.0737	1.5944	pCi/g
Radium-228	Normal	10	0	1.3	2.9	2.177	0.531	5.0737	4.874	pCi/g
Uranium-233/234	Lognormal	16	0	0.91	1.472	1.145	0.156	4.1233	1.7882	pCi/g
Uranium-235	Lognormal	16	0	0.011	0.12	0.053	0.033	4.1233	0.1891	pCi/g
Uranium-238	Lognormal	16	0	0.9	1.521	1.183	0.188	4.1233	1.9582	pCi/g

a = All UTLs are calculated assuming normal distribution.
X = Not applicable because > 80% data were non-detects.
% Non-detects are calculated from all accepted valid data except equipment rinsates.
Min and Max values: highest/lowest detected value or, if no detected values, 1/2 IDL followed by U
IDL = instrument detection limit.
*Manganese contains 2 outliers, cobalt one; outliers included in summary statistics, not included for UTLs.
**Cesium and Silicon exhibit bimodal distributions; Cesium bimodal is due to two different IDLs
All UTLs are calculated assuming normal distribution.

TABLE E-5

SUMMARY STATISTICS FOR ROCK CREEK: SUPPORTING DATA TYPES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	99/99 UTL	Units
Ammonia	Normal*	9	50	0.172U	4.81	1.614	1.56	NC	mg/kg
Carbonate	X	3	100	25U	25U	X	X	X	mg/kg
Nitrate/Nitrite	Normal*	9	0	0.705	4.79	2.319	1.47	NC	mg/kg
Oil & Grease	Normal*	9	10	27U	160	81.7	40.7	NC	mg/kg
pH	Normal*	6	0	6.39	9.1	7.63	0.93	NC	pH
Specific Conductance	Normal*	6	0	11.2	32.75	22.06	9.43	NC	umhos/cm
Total Organic Carbon	Normal*	6	0	9970	19900	15570	3783	NC	mg/kg

X = Not calculated because 100% of data were non-detects.
Normal* = Assumed to be normal distribution for summary statistics of supporting data
NC = Not calculated

TABLE E-6

SUMMARY STATISTICS FOR ROCK CREEK, GROUP 2 ANALYTES: FALLOUT RADIONUCLIDES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	Tol Fact	99/99 UTL	Units
Americium-241	Lognormal	14	0	0.0095	0.036	0.02	0.007	4.3372	0.05036	pCi/g
Cesium-134	Nonparam	9	0	0.071	0.1	0.084	0.012	5.3889	0.148667	pCi/g
Cesium-137	Lognormal	12	0	0.71	2.5	1.41	0.49	4.633	3.68017	pCi/g
Plutonium-239/240	Lognormal	18	0	0.026	0.1	0.055	0.014	3.9604	0.110446	pCi/g
Strontium-89/90	Normal	9	0	0.095	1	0.618	0.298	5.3889	2.23892	pCi/g

All UTLs are calculated assuming normal distribution.

1.0 INTRODUCTION

This report for the Background Soils Characterization Program (BSCP) meets the objectives of background characterization of surficial soils as required by the Interagency Agreement (IAG) (1991) among the U.S. Environmental Protection Agency (EPA), the State of Colorado, and the U.S. Department of Energy (DOE) for the Rocky Flats Environmental Technology Site (RFETS).

Data for background surficial soils provide a baseline against which data from Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFIs) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigations (RIs) may be compared. The results of these comparisons are used to help identify site-specific contamination within Operable Units (OUs) at RFETS. Data for the physical and chemical properties of background surficial soils also provide a baseline for other environmental programs that monitor for potential contaminant releases.

Background data can also be used for decision-making with respect to the establishment of reasonable cleanup goals and for justifying a waiver for complying eiht applicable of relevant and appropriate requirements (ARARs). These data also provide a benchmark in assessing human health risks due to site contaminantion, via the soil ingestion and inhalation pathways. To properly evaluate the added risk for site contamination via these pathways, data are required to characterize the chemical and physical properties of the upper 5 centimeters (cm) of soil in areas thought to be unaffected by activities at RFETS (i.e., background areas). The risk from background alone may then be assessed and compared with risk calculated using OU site data.

1.1 SCOPE

The Background Geochemical Characterization Report (DOE, 1993) provided baseline data for subsurface soils (i.e., geologic materials), stream water and sediments, seep water and sediments, and groundwater, but did not provide data for surficial soils. The scope of Phase I of the BSCP included (1) the characterization of chemical and physical properties of surficial soils and (2) the verification of the Rock Creek area as representative of background conditions. Phase II of the BSCP, as outlined in the *Background Soils Characterization Plan* (DOE, 1994), was designed to further characterize background soils to a depth of 1.2 meters (m), and may be implemented if needed.

Surface-soil samples from the Rock Creek area were collected in 1992 and 1993 in support of RCRA/CERCLA investigations for Operable Unit 1 (OU1) and Operable Unit 2 (OU2) to establish background soil chemistry for determining the nature and extent of contamination and for identifying chemicals of concern for human health and ecological risk assessments. The Rock Creek sample locations were selected to represent soil types in OU1 and OU2 and are located upwind and upgradient of suspected contaminant sources. However, the Rock Creek study was not planned and conducted according to the EPA's data quality objectives (DQO) process, and no exploratory data analysis (EDA) was conducted. Therefore, even though the BSCP EDA indicated that Rock Creek was in a background area for naturally occurring analytes

(DOE, 1994), a carefully designed program (i.e., the BSCP) was implemented to provide a fully defensible background data set for surficial soils.

The EDA performed during the development of the *Background Soils Characterization Plan* (DOE, 1994) indicated that two sampling efforts were appropriate to characterize background surface soils and augment the existing background data set (i.e., Rock Creek) for the chemicals in the vicinity of RFETS. Those sampling efforts were completed as follows:

- <u>Group 1 (Metals, Naturally Occurring Radionuclides, and Organic Compounds)</u>:
  Twenty samples were collected just north of RFETS from soils that are similar in topography, parent material, and historic use to soils on RFETS. These samples were analyzed for naturally occurring radionuclides (uranium and radium isotopes), metals and selected inorganic constituents, semivolatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs).

- <u>Group 2 (Fallout Radionuclides)</u>:
  Fifty samples were collected from remote (offsite) locations along the Colorado Front Range for measuring activities in soil from fallout radionuclides (americium-241, cesium-134, cesium-137, strontium-89+90, and plutonium-239+240).

1.2 PROJECT OBJECTIVES

The project objectives for the BSCP are discussed in greater detail in the following sections of this report, but are summarized below for the convenience of the reader. Based on the DQO process utilized during development of the *Background Soils Characterization Plan* (DOE, 1994), the project objectives were as follows:

- Determine background concentrations of organics, metals, and radionuclides in surficial soils collected for the BSCP

- Provide remediation projects with 100-percent validated data that are technically and legally defensible, and are representative of background concentrations of constituents in surficial soils

- Compare BSCP data with Rock Creek data for surface soils, in order to assess the validity of the Rock Creek data as background for metals and radionuclides

- Compare the BSCP and Rock Creek data to data generated by other studies that have investigated the chemical and physical characteristics of background surficial soils, in order to put the results of the BSCP and Rock Creek studies into a larger, regional perspective.

An additional objective not included in the work-plan development, but considered helpful for present and future remediation projects, was to determine the mass-isotope ratio of plutonium-239/plutonium-240 for 12 remote (i.e., Group 2) samples. The mass-isotope ratios for regional fallout for plutonium can be used in future studies at RFETS, as well as in other regional studies of fallout radionuclides.

1.3 HISTORICAL BACKGROUND OF THE SITE

The facility at Rocky Flats is a government-owned, contractor-operated site that was part of the nationwide complex for nuclear-weapons production. Prior to January 1992, the mission of the plant was to fabricate nuclear-weapons components from plutonium, uranium, and nonradioactive metals (principally beryllium and stainless steel). Additionally, the plant reprocessed plutonium that was removed from obsolete weapons. Both radioactive and nonradioactive wastes were generated at the plant.

Historically, wastes generated at the plant site were either disposed onsite, stored in containers onsite, or disposed offsite. Because of these past practices, the facility was proposed for inclusion on the Superfund National Priorities List (NPL) in 1984, and was formally included on the NPL in the October 4, 1989 Federal Register.

In January 1992, the primary mission of the facility was changed from manufacturing and reprocessing to one of environmental restoration, waste management, decontamination and decommissioning, and economic development. In July 1994, the name of the facility was formally changed from Rocky Flats Plant (RFP) to RFETS to better reflect the current mission of the facility.

Present waste-handling practices involve recycling of hazardous materials; onsite storage of hazardous, radioactive, and mixed wastes; and offsite disposal of radioactive materials. Preliminary assessments under the RFETS Environmental Restoration (ER) Program identified some of the former onsite storage and disposal locations as potential sources of environmental contamination.

The RFETS ER Program is part of the DOE ER Program, which was established to remediate inactive waste sites at DOE facilities. The DOE ER Program was mandated to remediate waste sites in compliance with environmental laws and regulations. Specifically, the program includes site identification and characterization, remedial design and remedial action, and post-closure activities such as monitoring and field inspections at inactive radioactive, hazardous, and mixed-waste sites. The BSCP and the results presented in this report directly support the RFETS ER Program by providing baseline information for these activities.

1.4 PHYSICAL SETTING

RFETS is located in northern Jefferson County, Colorado, approximately 16 miles northwest of Denver (Figure 1-1). Other surrounding cities include Arvada, Boulder, Broomfield, and Westminster, which are located less than 10 miles from RFETS. RFETS consists of approximately 10 square miles (6,550 acres) of federally owned land in Sections 1 through 4 and 9 through 15 of T2S, R70W, 6th Principal Meridian. Major buildings are located within the

RFETS security area of approximately 400 acres. The security area is surrounded by a buffer zone of approximately 6,150 acres (Figure 1-2).

The natural environment of RFETS and vicinity is influenced primarily by its proximity to the Front Range of the Rocky Mountains. RFETS is directly east of the north-south trending Front Range, and is located about 16 miles east of the Continental Divide at an elevation of approximately 6,000 feet above mean sea level. RFETS is located on a broad, eastward-sloping pediment surface of coalescing alluvial fans. The fans extend approximately 5 miles in an eastward direction from their origin at Coal Creek Canyon and terminate on the east at a break in slope to low rolling hills. The operational area at the RFETS is located near the eastern edge of the fans on a terrace between stream-cut valleys (North Walnut Creek and Woman Creek).

Geologic units beneath RFETS consist of unconsolidated surficial units of Quaternary age (Rocky Flats Alluvium, various terrace alluvia, valley-fill alluvium, and colluvium), which unconformably overlie Cretaceous-aged bedrock (Arapahoe Formation, Laramie Formation, and Fox Hills Sandstone) (Figure 1-3). This geologic sequence forms part of a monoclinal fold with a western edge composed of uplifted strata of Mesozoic age that become younger to the east. Figure 1-4a and 1-4b shows the surficial geology of the RFETS (EG&G, 1992a) and Figure 1-5 depicts the erosional surfaces and alluvial deposits in cross-section. A comprehensive summary of the geology of RFETS is provided in the *Geologic Characterization Report* (EG&G, 1995a).

1.4.1 Climate and Meteorology

The area surrounding RFETS has a semiarid climate characteristic of most of the central Rocky Mountain region. Approximately 40 percent of the 15 inches of annual precipitation falls during the spring season, much of it as snow. Thunderstorms (from June through August) account for an additional 30 percent of the annual precipitation. Autumn and winter are drier seasons, accounting for 19 and 11 percent of the annual precipitation, respectively. Snowfall averages 85 inches per year, most falling from October through May (DOE, 1980). Temperatures are moderate; extremely warm and cold weather is usually of short duration. On the average, daily summer temperatures range from 55 to 85 degrees Fahrenheit (°F), and winter temperatures range from 20° to 40°F. The low average relative humidity (46 percent) is due to the moisture-blocking effect of the Rocky Mountains. Wind, temperature, and precipitation data are collected at RFETS and are summarized annually.

Winds at RFETS are predominantly northwesterly and less than 15 miles per hour (mph); winds greater than 6.7 mph with easterly components are infrequent. However, RFETS is noted for its strong, gusty winds that are commonly associated with thunderstorms and the passage of weather fronts. The highest wind speeds typically occur as westerly windstorms known as "chinooks." These winds generally occur from late November into April, but reach their height in January. Chinook wind speeds typically exceed 75 mph, and gusts may exceed 100 mph. In addition, moderately strong northerly or southerly winds are common in winter and summer, respectively, and easterly winds ("upslopes") may be associated with heavy snowfall or other precipitation. The steep-sided canyons along the Front Range tend to channel the airflow during both upslope and downslope conditions (DOE, 1980; EG&G, 1995b). Figure 1-6 illustrates a typical annual summary of wind velocity and frequencies at RFETS.

1.4.2 Soils of RFETS

Soils of RFETS form a pattern related to geologic parent materials, geomorphic landforms, relief, climate, and natural vegetation. Recognizing the relationships between types of soils and particular types of landscapes or segments of landscapes over the broad region that surrounds RFETS, the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) developed map-unit models on aerial photographs to reasonably predict the types of soils in an area. The boundaries of the map units were refined and the map-unit models were tested by digging test pits and recording the characteristics of the soil profiles studied.

Soils are taxonomically classified based on a particular set of soil properties (e.g., number and size of clasts, particle-size distribution, acidity, distribution of plant roots, and structure of soil aggregates) and the arrangement of horizons within the soil profile. The soil taxonomic system is hierarchical, enabling categorization into increasingly greater detail. The system is organized in increasing level of detail by order, suborder, great group, subgroup, and series. For the RFETS area, Figure 1-7 illustrates the SCS map units at the soil-series level. Figure 1-8 illustrates soils at the subgroup level, modified by particle size and depth class. Soil series within a landscape type at RFETS are similar at the subgroup level.

Soils of RFETS consist of four general landscape types and geologic map units:

- Pediment soils are located on the broad, dissected, eastward-sloping pediment surface in the western portion of the site. These soils are associated with the Rocky Flats Alluvium (Qrf) geologic map unit.

- Valley-slope soils are located in the stream-cut valleys of the intermittent Rock Creek, Walnut Creek, and Woman Creek drainages. These are associated with the Laramie Formation (Kl), Arapahoe Formation (Ka), and Landslide (Qls) geologic map units.

- Hilltop soils of the eastern third of RFETS are similar to valley-slope soils and are associated with the Laramie (Kl) and Arapahoe (Ka) Formations. Localized areas on hill summits are associated with Terrace Alluvium (Qta).

- Drainage-bottom soils are soils forming in recent alluvium (Qa) along drainage bottoms.

A comparison between the geologic map (Figure 1-3) and the soils map (Figure 1-7) illustrates the relationship between soils at the soil-series level and geologic map units; this relationship was utilized in implementing the sampling design for Group 1 analytes (see Subsection 3.2). Table 1-1 summarizes the soil series and taxonomic classifications with their associated landscape types and geologic formations.

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SECTION 1

TABLES

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TABLE 1-1

SOIL TAXONOMIC TABLE

ORDER	SUBORDER	GREAT GROUP	SUBGROUP	CLASS MODIFIER	SERIES	GEOLOGY	LANDSCAPE	SIMILAR GROUP
Mollisol	Ustoll	Paleustoll	Aridic	clayey-skeletal	Flatirons	Qrf	Pediment	1
		Argiustoll	Aridic	loamy-skeletal	Nederland	K1, Ka, Qls	Valley slope	2
					Valmont	Qrf	Pediment (East)	2
				fine	Nunn	Qta	East hillslopes	3
				fine	Standley	Ka, Kl, Qls	East hillslopes	3
				fine, mod. deep	Leyden	Ka, Kl, Qls	East hillslopes	3
				clayey, shallow	Primen	Ka, Kl, Qls	East hillslopes	3*
			Torrertic	fine	Denver	Ka, Kl, Qls	Valley slope	3
				fine	Englewood	Ka, Kl, Qa	Valley toeslope	3
				fine, mod. deep	Kutch	Ka, Kl, Qls	Valley slope	3
	Aquoll	Haplaquoll	Cumulic	fine-loamy	McClave	Qa, Kl	Drainage bottom	4
Entisol	Fluvent	Torrifluvent	Ustic	fine-loamy	Haverson	Qa, Kl	Drainage bottom	4
	Orthent	Torriorhent	Ustic	clayey, shallow	Midway	Ka, Kl, Qls	Valley slope	3*

Note:3* The shallow soils (Primen and Midway series) have been included as similar to Group 3 soils because they occur with Group 3 soils and are not easily mapped separately

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SECTION 1

FIGURES

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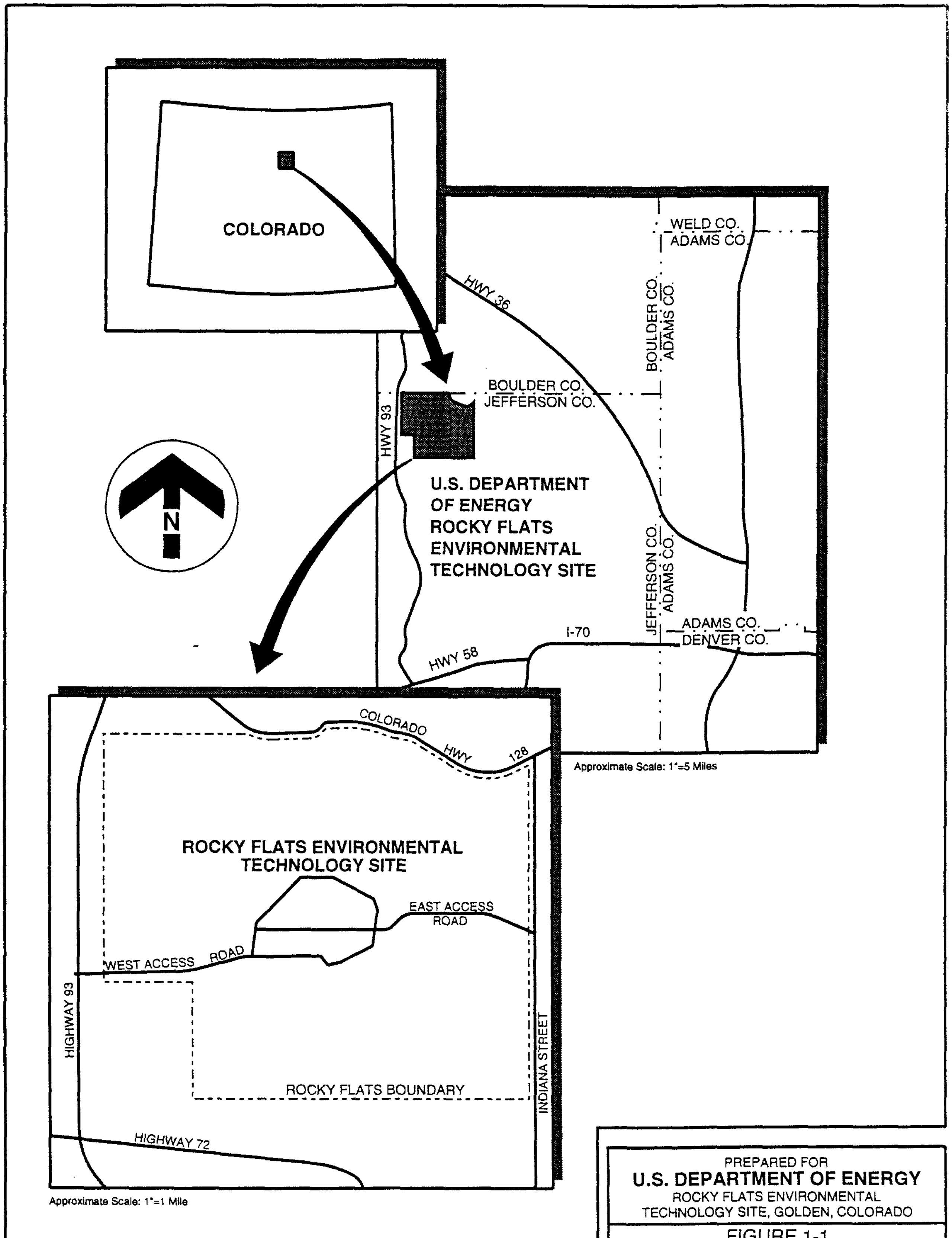

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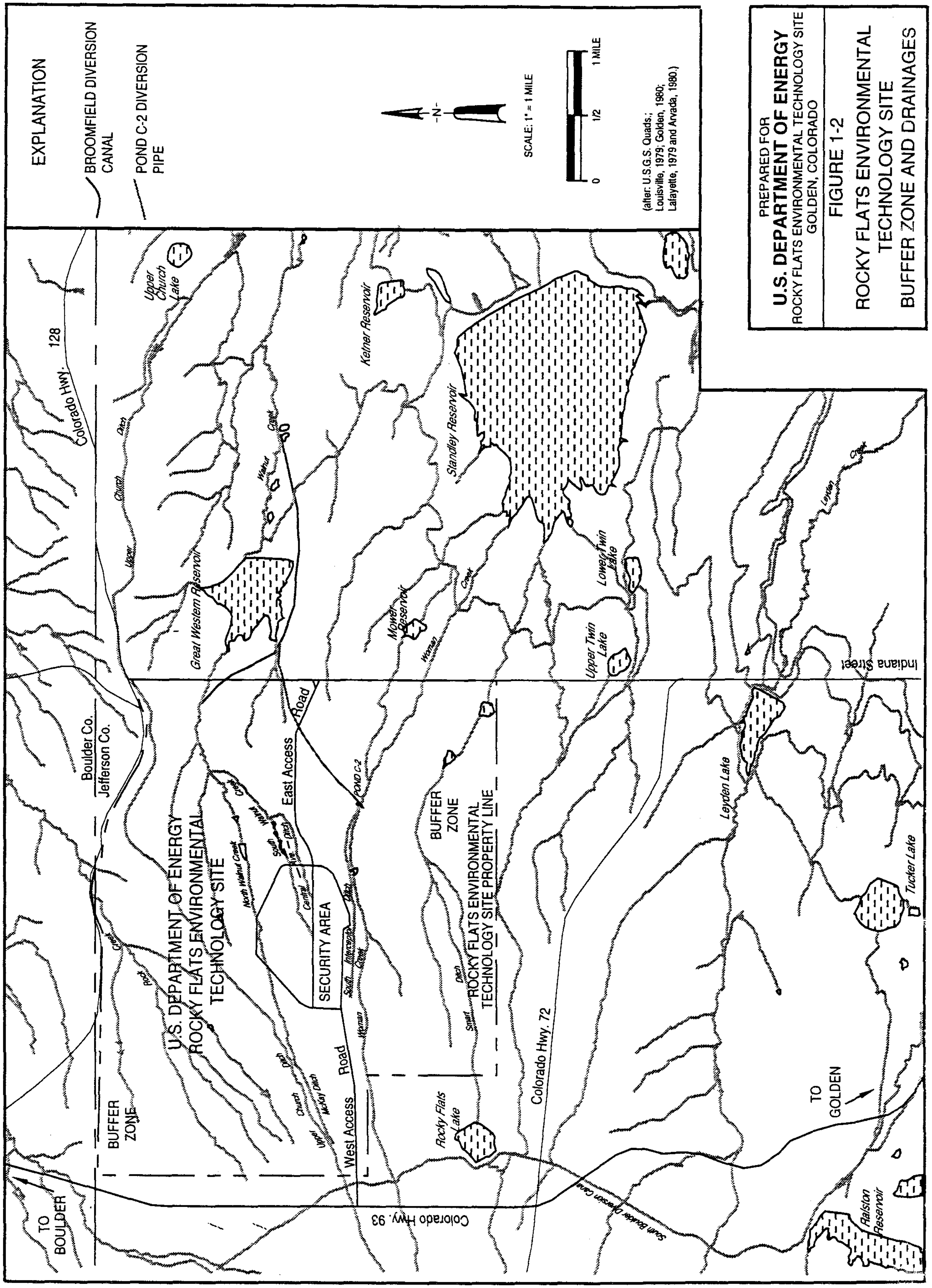
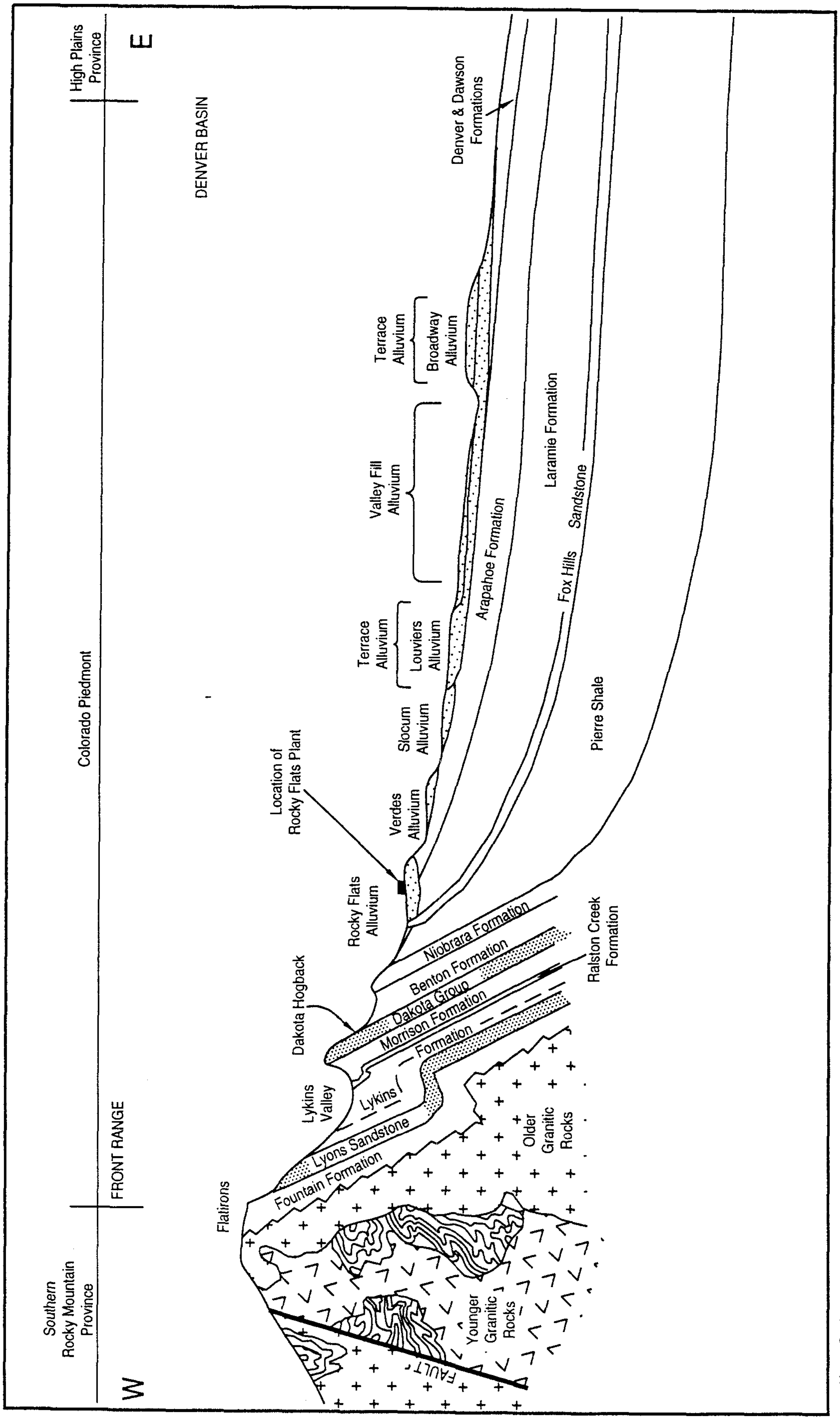
ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE, GOLDEN, COLORADO

FIGURE 1-1
GENERAL LOCATION OF
ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE


EXPLANATION
BROOMFIELD DIVERSION CANAL
POND C-2 DIVERSION PIPE
N
SCALE: 1" = 1 MILE
0
1/2
1 MILE
(after U.S.G.S. Quads.; Louisville, 1979; Golden, 1980; Lafayette, 1979 and Arvada, 1980.)
PREPARED FOR
U.S. DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
GOLDEN, COLORADO
FIGURE 1-2
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
BUFFER ZONE AND DRAINAGES
Colorado Hwy. 128
Upper Church Lake
Kelner Reservoir
Standley Reservoir
Great Western Reservoir
Upper Church Ditch
Walnut Creek
Mower Reservoir
Woman Creek
Lower Twin Lake
Upper Twin Lake
Indiana Street
Leyden Creek
Leyden Lake
Tucker Lake
Boulder Co.
Jefferson Co.
East Access Road
POND C-2
U.S. DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
BUFFER ZONE
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE PROPERTY LINE
SECURITY AREA
North Walnut Creek
South Walnut Creek
Central Ditch
South Interceptor Ditch
Smart Ditch
Rock Creek
Colorado Hwy. 72
West Access Road
Church Ditch
Upper McKay Ditch
BUFFER ZONE
Rocky Flats Lake
TO GOLDEN
TO BOULDER
Colorado Hwy. 93
South Boulder Diversion Canal
Ralston Reservoir



Not to Scale

Source: Boulder County Planning Commission, 1983 and Scott, 1960

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE, GOLDEN, COLORADO

FIGURE 1-3

GENERALIZED EAST-WEST CROSS-SECTION FRONT RANGE TO DENVER BASIN

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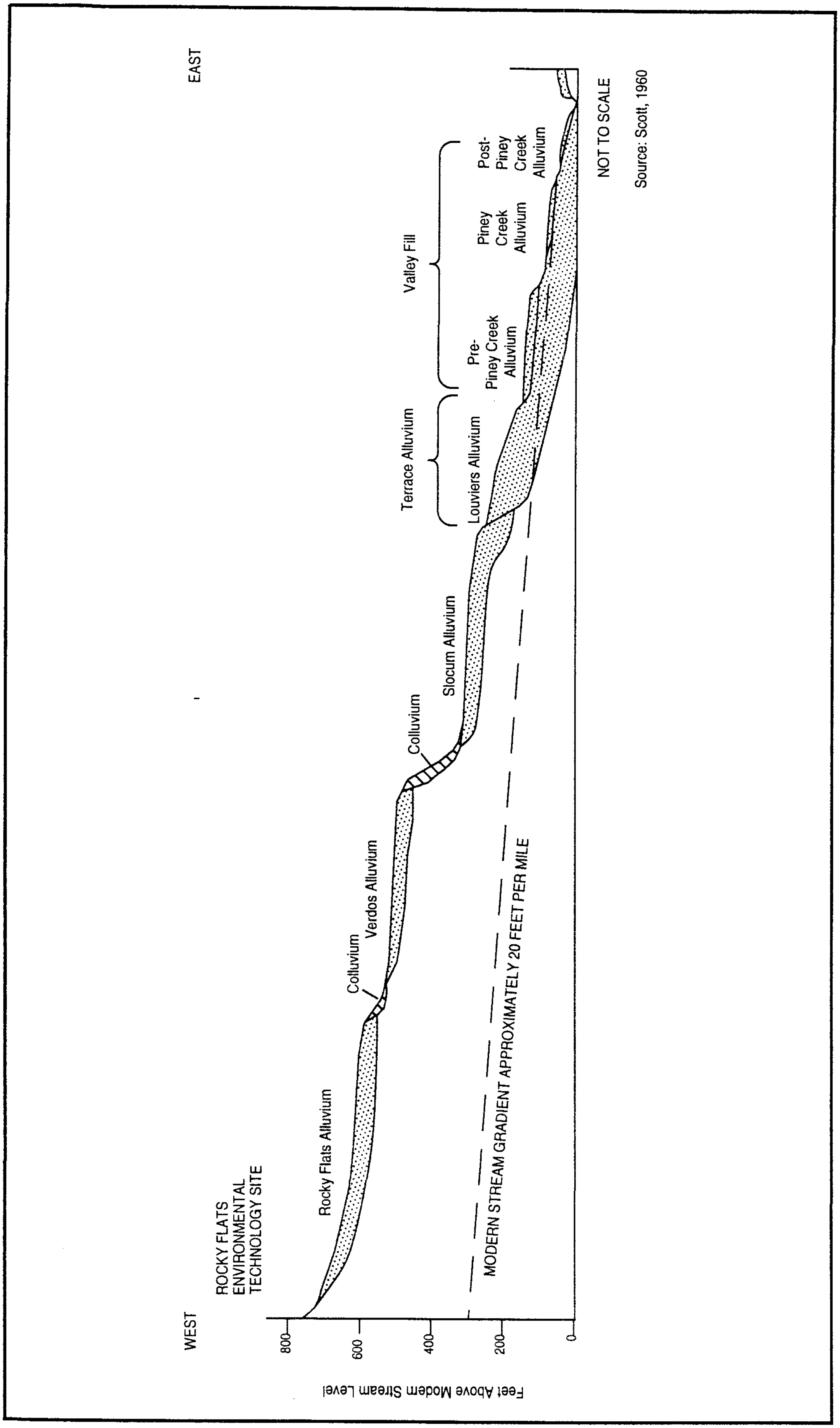

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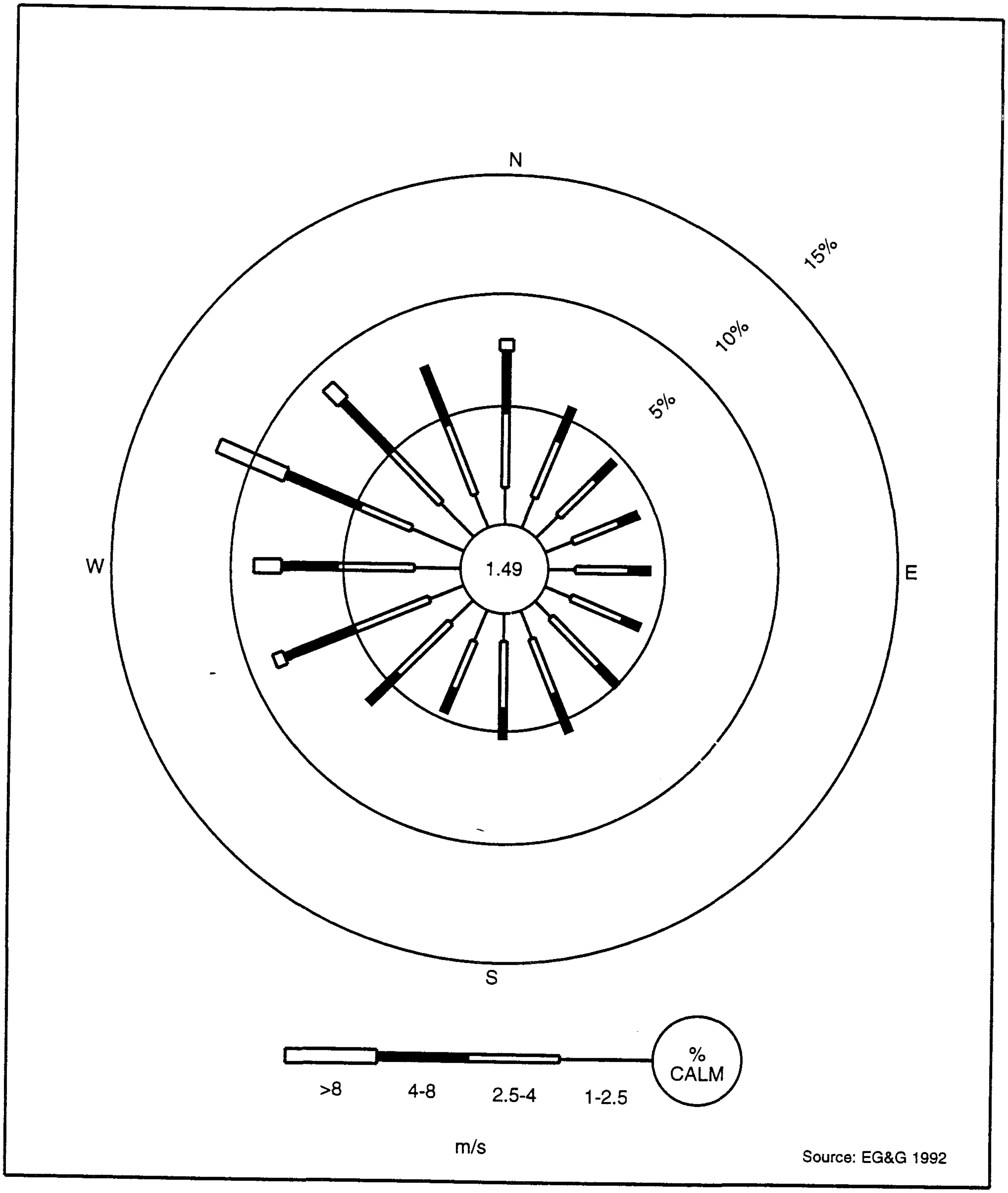
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE, GOLDEN, COLORADO

FIGURE 1-5

EROSIONAL SURFACES AND ALLUVIAL DEPOSITS EAST OF THE COLORADO FRONT RANGE



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ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE, GOLDEN, COLORADO

FIGURE 1-6

WIND ROSE FOR THE
ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE
1992-24 HOUR

2.0 METHODS

2.1 STUDY DESIGN

Protocol methods for site selection, sample collection, sample handling, data handling, laboratory analysis, statistical analysis, and quality control were detailed in the *Background Soils Characterization Plan* (DOE, 1994) and were followed where appropriate. As noted in this work plan, different sampling methods have been used to sample surficial soils at RFETS.

For plutonium in particular, various sampling methods have been used to provide samples to assess risk to human health from the inhalation pathway and to determine plutonium inventories in the soil. Typically, the methods for determining the plutonium inventory involve sampling soils to depths ranging from near zero to 20 or 30 cm, whereas the methods for assessing health risk through the inhalation pathway involve depths from near zero to 5 cm. Comparability between historic data for surficial soils and recent data may, therefore, be dependent on the sampling method used.

Since 1990, two different methods of sampling surficial soils have been used at RFETS for RCRA/CERCLA-related activities. These two methods are referred to as the CDPHE method and the Rocky Flats (RF) method; both are outlined in EG&G SOP GT.08 (EG&G, 1993). Comparison of plutonium activities measured using either the CDPHE and RF sampling methods is described in the OU3 RFI/RI and in the *Background Soils Characterization Plan* (DOE, 1994), and illustrated here in Figure 2-1. To summarize briefly, the CDPHE method obtains a composite sample from 25 subsample locations within a 4-acre to 10-acre plot. Each subsample is collected by removing the soil from a 5.1-cm by 6-cm area, with a 0.64-cm-deep template driven into the soil. In contrast, the RF method obtains a composite sample from 10 subsample locations within two one-meter-square areas; each subsample is collected by removing soil from a 10-cm by 10-cm square, with a 5-cm-deep template driven into the soil.

To meet the objectives of Phase I of the BSCP, soil samples were collected using the RF method and analyzed for various constituents. The RF method was utilized in this study to ensure consistency with soil sampling performed at the various OUs; the OUs will be the primary users of the BSCP data. In addition, the Rock Creek samples were collected using the RF method, thereby necessitating use of the RF method for BSCP samples to make the data sets comparable.

Group 1 samples were collected from 20 sites located in Boulder County Open Space, just north of RFETS, in soils similar to RFETS soils (Figure 2-2). These samples were analyzed for naturally occurring constituents (metals, and radium and uranium isotopes), selected organic compounds (SVOCs, pesticides, PCBs), and supporting chemical and physical parameters. The naturally occurring constituents and supporting parameters are listed in Table 2-1; the organic compounds are listed in Table 2-2.

Group 2 samples were collected from 50 sites remote from RFETS and located in undisturbed areas along the Front Range of Colorado (Figure 2-3). These samples were analyzed for radionuclides distributed globally by fallout from nuclear-weapons testing. The fallout analytes are listed in Table 2-3. In addition, 12 of the 50 Group 2 samples were also analyzed by thermal ion mass spectrometry (TIMS) to determine the mass ratio of two isotopes of plutonium (plutonium-240/plutonium-239 ratio).

Samples from all 70 sites (20 Group 1 and 50 Group 2 samples) were also analyzed for grain-size distribution, bulk density, and total organic carbon. These supporting parameters are useful in for assessing natural variability due to the particular geochemical behavior of an analyte (e.g., adsorbed trace metals may be expected in higher concentrations in a finer-grained soil, due to the greater surface area per unit volume of soil).

2.2 SELECTION OF SAMPLING SITES

2.2.1 Group 1 Analytes: Metals, Naturally Occurring Radionuclides, Organic Compounds, and Other Supporting Parameters

The EDA performed during development of the work plan for the BSCP (DOE, 1994) indicated that the sample size and location of Rock Creek sampling sites were adequate for characterizing background soils for naturally occurring constituents, with the possible exception of uranium-235, which required additional samples to increase the sample size. To collect additional samples for uranium-235 analysis and provide a more extensive data set for the naturally occurring constituents and selected organic compounds such as the SVOCs, pesticides, and PCBs, 20 additional sampling locations were selected offsite in soils similar to RFETS soils. Site selection for a suitable background area used the following criteria:

- Sites outside the influence of potential contamination from RFETS
- Soils similar to RFETS soils
- Property access readily available
- Sites undisturbed by recent (since 1950) human activity (e.g., no plowing, tilling, or overturning of soil).

The EDA indicated that the Group 1 sampling area, as well as most offsite areas, was not within RFETS's sphere of influence for the naturally occurring constituents and organic compounds. Offsite sampling, as opposed to sampling in the RFETS Buffer Zone, was selected to obtain a wider spacing between samples. Because the area north of RFETS has geologic parent materials and landforms that are similar to those at RFETS, and is accessible and relatively undisturbed (Open Space owned by Boulder County and the City of Boulder), the area north of RFETS was selected for sampling.

For consistency with the Golden area soil survey (SCS, 1980), which included all of RFETS, the BSCP team used aerial photos, geologic maps, and site visits to extend the Golden area map-unit design into Boulder County for the purpose of selecting sampling locations, rather than using the Boulder County map-unit design (SCS, 1975).

Soil types that are associated with particular landforms and geologic parent materials at RFETS were mapped into the Boulder County study area. Three landscape types, or landforms, were selected for sampling in order to represent RFETS soils: (1) pediment surfaces, (2) valley slopes, and (3) drainage bottoms. Seven sites for the pediment-surface soils (P1 through P7), seven sites for valley-slope soils (V1 through V7), and six sites for drainage-bottom soils (D1 through D6) were randomly selected.

The randomly selected sites were field-checked and evaluated for signs of disturbance. If the site appeared disturbed (e.g., animal burrowing), another site was randomly selected and evaluated prior to sampling. The sites were located by a Global Positioning System (GPS) receiver using a post-processing method to obtain sub-meter accuracy. The sites for Group 1 sampling and those for the Rock Creek sampling are shown on Figure 2-2 and listed in Table 2-4.

2.2.2 Group 2 Analytes: Plutonium and Other Fallout Radionuclides

Previous studies of the biogeochemical behavior of plutonium have indicated that once it enters terrestrial ecosystems, it is generally immobile (Muller and Sprugel, 1977; Litaor, 1993) except for the influence of macrofauna (e.g., earthworms and prairie dogs), which may increase vertical mixing (Bernhardt, 1976; Litaor *et al.*, 1994). Erosion, therefore, can be considered the primary transport mechanism for plutonium after it is deposited on the soil. However, the overall distribution of atmospheric fallout onto the ground is influenced by large-scale factors such as precipitation, weather patterns, and topography.

As noted previously, americium-241, cesium-134, cesium-137, plutonium-239+240, and strontium-89+90 do not occur naturally in soils. Fallout from the atmospheric testing of nuclear weapons and site-specific sources contributed these isotopes to surficial soils. In order to minimize the potential influence of plutonium sources from RFETS, Group 2 samples were collected from 50 distant locations along the Front Range. The 50 locations ranged from 12 to 106 miles from RFETS. Table 2-3 lists the analytes included for Group 2 sampling; Table 2-5 presents the locations where the remote samples were collected.

The location of the Rock Creek area in the RFETS Buffer Zone — although upwind and upgradient of the RFETS Industrial Area — was questioned as to whether or not the Rock Creek area was truly representative of the background conditions for fallout radionuclides in surficial soils. The EDA of all RFETS soil data that was performed during the work-plan development for the BSCP (DOE, 1994) gave no clear answer to this question. The EDA indicated that americium displayed a similar spatial distribution to that of plutonium and, therefore, americium levels in the Rock Creek area were also in doubt as representative of background (DOE, 1994). However, the EDA suggested that cesium-134, cesium-137, and strontium-89+90 were not windborne contaminants from RFETS and that the Rock Creek area could be considered to represent area-wide background for these radionuclides (DOE, 1994).

The objective of this portion of the BSCP study was to establish background soil concentrations or activity levels — which are reported in units of picoCuries per gram (pCi/g) or Bequerels per kilogram (Bq/kg) — for fallout radionuclides, notably plutonium. To meet the DQO criterion of comparability, the sampling and analytical methods used in this study are comparable to those used by the various OUs as prescribed in General Radiochemistry and Routine Analytical Services Protocol (GRRASP). The Rock Creek samples collected by OU1 and OU2 followed the same sampling and analysis protocols. For plutonium, the minimum detection activity (MDA) for the BSCP samples was lowered from the standard 0.03 pCi/g to 0.02 pCi/g to accommodate the lower activities expected for background; the lower MDA was achieved by increasing the count time for alpha spectroscopy. Another method of lowering the MDA is to increase the sample aliquot size, which has been shown to dramatically influence the plutonium results (Bernhardt, 1976; Sill, 1982). Therefore, to minimize the number of variables between the BSCP study and other RFETS studies, the aliquot size was kept similar to typical GRRASP procedures (i.e., 1 to 3 grams).

Criteria for selection of BSCP sampling sites were similar to those used in other studies of fallout radionuclides in surficial soils (McArthur and Miller, 1989; Bernhardt, 1976). These criteria were followed to minimize additional variability due to fallout distribution and erosion. As described further below, examination of topographic maps, inspection of proposed sampling sites, and discussions with landowners were performed to evaluate whether or not a given site met these criteria. The criteria are as follows:

General:

- Sites remote from RFETS
- Permission for property access readily available
- Precipitation generally similar to that at RFETS (12 to 16 inches per year)
- Relatively flat, open area, at least 40 feet in diameter, away from man-made structures, ditches, roadways, and any natural obstructions
- Minimal rock outcrops or debris
- Site similar in nature to surrounding land and at the same elevation; that is, not raised or depressed compared to the general grade of the land
- Ground sufficiently level to minimize runoff or water erosion.

Specific (Undisturbed since 1950):

- No plowing, tilling, or overturning of the soil
- No grading
- Minimal burrowing activity from rodents, moles, prairie dogs, and other animals

- No removal or addition of topsoil
- No flash flooding.

Specific (Ground Cover Present):

- Since 1950, the site has possessed some type of ground cover, such as grass, to minimize wind or water erosion
- Site not subjected to blowouts or buildup from wind, or silt buildup from irrigation.

The process of site selection began with identifying on a topographic map those areas that potentially fit the selection criteria. Next, permission to sample was requested from the agency or individual who owned the property, and potential sampling sites in each area were located at random. In some cases, the landowner or agency representative recommended specific areas, which they knew had been undisturbed since 1950. Each potential sampling site was then visited and evaluated based on the selection criteria. If the site was rejected, another potential sampling site in the area was located, then evaluated and selected or rejected. This process continued until 50 sites were chosen. The specific sampling sites were located by GPS equipment using a post-processing method to obtain accuracy to less than one meter. Before leaving the field, the sites were marked on a 7.5-minute topographic quadrangle map.

2.3 SAMPLE COLLECTION, HANDLING, AND DATA MANAGEMENT

Prior to the commencement of field activities, all personnel received training for proper sample collection, handling, and data management procedures, as described below.

2.3.1 Sample Collection

Five 2,500-cubic-cm samples were collected from one square meter and were composited following the RF method for soil sampling (EG&G EMD OP GT.08, 1993). As noted in Section 2.1 of this report, the RF method (Figure 2-4) employs a 10-cm by 10-cm stainless-steel jig driven 5 cm into the soil. Soil samples are removed from the interior of the jig with a stainless-steel scoop and placed in a stainless-steel pan. Five samples were collected by this method from within a one-square-meter area; one sample was collected from each of the four interior corners and one was collected from the center of the square area. These five samples were sieved through a 10-mesh metal sieve, placed in a stainless-steel bowl, and mixed. In order to prevent cross-contamination between samples, the sieve, jig, trowel, and pan were decontaminated prior to collecting each sample by following a protocol procedure [EG&G EMD OP FO.3, General Equipment Decontamination, (EG&G, 1995c)].

2.3.2 Sample Handling

The composited soil sample was placed in a glass sample container, which was labeled according to protocol procedure and then shipped to the laboratories following protocol procedure [EG&G EMD OP FO.13, Containerization, Preserving, Handling, and Shipping of

Soil and Water Samples (EG&G, 1992b)]. Sample containerization and holding-time requirements [EG&G EMD OP FO.19, Base Laboratory Work (EG&G, 1992c)] are summarized in Table 2-6. Chain-of-custody (COC) forms accompanied the sealed samples to the laboratory to ensure sample integrity [EG&G EMD OP FO.14, Field Data Management (EG&G, 1994a)].

2.3.3 Data Management

2.3.3.1 Field Data Management

Field data (e.g., date of sample, time of sample, sample number, sample location code, crew members present, and a brief description of the vegetation and soils) were recorded in field log books and standardized forms for sampling of surficial soils. Other field data include topographic maps, photographs of the site, samples of predominant vegetation, and computer printouts from GPS post-processing.

2.3.3.2 Analytical Data Management

All laboratory data were electronically entered into the Rocky Flats Environmental Database System (RFEDS) following protocol methods. GPS location data were first reduced to latitude and longitude based on the WGS84 spheroid using ASHTECH PRISM™ software, and then converted to the RFETS standard state-plane coordinate system (NAD 1927) using ARC-INFO™ software. Location data were then entered into RFEDS. Analytical data and location data were also entered into the RFETS Geographic Information System (GIS) database.

2.4 LABORATORY ANALYTICAL METHODS

RFETS has established requirements for analytical chemistry services for environmental samples collected in support of the RFETS ER Program. These requirements are established in Parts A and B of the EG&G Rocky Flats GRRASP (1988a, 1988b). The GRRASP requires analyses of EPA's target compound list (TCL) organics, SVOCs, pesticides, and PCBs. In addition, the GRRASP requires total analyte list (TAL) metals to be analyzed using EPA Contract Laboratory Program (CLP) methods and procedures. The GRRASP also requires analyses of all non-CLP and radiochemistry parameters to be modified parallel the Quality Control (QC) requirements of CLP-type analyses. Therefore, all organic and inorganic laboratory analytical data in this BSCP report meet the QC needs equivalent to analytical level-IV data.

Mass-spectrometer analyses of plutonium-239 and plutonium-240, performed by Los Alamos National Laboratory (LANL), did not follow GRRASP procedures; these analyses were non-routine, so are not detailed in the GRRASP. However, the results of LANL analyses are important to this study, and are discussed in Section 3.4 of this report. Analytical results of the LANL analyses are provided in Appendix A.

2.4.1 Group 1 Analytes

Samples from the 20 Group 1 sites were analyzed for metals, naturally occurring radionuclides, and selected organic compounds, as well as supporting data (see Appendix B). The analyte list, laboratory, laboratory methods used, and the contract required detection limits (CRDLs) for each analyte (except antimony) are presented in Appendix C. Procedures and methods are also discussed in Appendix C. With the exception of antimony, all metals were analyzed using CLP methods as described in the GRRASP. The more-sensitive method employed for analysis of antimony (used by the contracted lab, Quantere, formerly IT Pittsburgh) used a Thermo Jarrel-Ash™ inductively coupled plasma (ICP) trace analyzer. Instrument detection limits (IDLs) for antimony were calculated by analyzing a standard sample containing three to five times the estimated IDL, seven consecutive times for each of three non-consecutive days. The IDL established for this method was approximately 0.38 mg/kg of soil, varying slightly with the moisture content of the soil sample.

2.4.2 Supporting Data From Group 1 Sampling

All samples were analyzed for total organic carbon (TOC), grain-size distribution, and bulk density. Samples from the 20 Group 1 locations near RFETS were analyzed for pH, nitrate/nitrite, ammonia, carbonate as $CaCO_3$, and oil and grease. The sampling location, laboratory method used, and the CRDL for each supporting analyte are also presented in Appendix C.

2.4.3 Group 2 Analytes

Samples from the 50 Group 2 sites were analyzed for americium-241, cesium-134, cesium-137, plutonium-239+240, and strontium-89+90. These analytes do not occur naturally, but are known to be present in background soils because of world-wide fallout from atmospheric nuclear-weapons testing. The sample location, laboratory method used, and CRDL for each analyte are presented in Appendix C.

<u>Total plutonium analyses</u>

Analysis for plutonium can be broken into the following steps (Bernhardt, 1976):

1. Dissolving sample and adding tracer. This step may or may not involve the use of hydrofluoric acid (HF) to dissolve the silica. The complete-dissolution method involves the use of excess HF; the leaching method does not.
2. Isolating desired elements from interfering elements by chemical separations.
3. Electroplating sample on planchet or metallic disk.
4. Counting sample emissions by appropriate technique. Alpha-pulse-height analysis is used for plutonium samples. Using this analytical method, plutonium-239 cannot be separated from plutonium-240 by alpha energies, so the two isotopes are usually reported as plutonium-239+240.
5. Calculating sample activity and estimating analytical error.

Samples from all the Group 2 sites were analyzed for plutonium-239+240 content by a contracted laboratory (TMA Thermal Analytical, Inc.) using a protocol method outlined in the GRRASP. This protocol method uses HF acid for complete dissolution of a 3-gram aliquot of soil, before the plutonium is recovered from the solution and electro-deposited onto a stainless-steel disk, in preparation for alpha spectrometry. The complete-dissolution method has been used at RFETS for total plutonium analysis since 1990. It was appropriate, therefore, that the BSCP utilize this method in order to ensure comparability with other post-1990 data at RFETS. Other recent sampling efforts (Webb *et al.*, 1994) and historical sampling efforts may have used a leaching method, different aliquot sizes, and other techniques; each of which may introduce some method-related variability in the results for low-level plutonium values (Bernhardt, 1976; Sill, 1982).

<u>Plutonium Isotopic Ratios</u>

Samples from 12 of the 50 remote locations (see Table 3-2) were analyzed by TIMS at LANL. The TIMS analysis resolved total plutonium into the isotopes, plutonium-239 and plutonium-240. LANL cooperated with TMA Norcal for this portion of the project. Stainless-steel planchettes that contained total plutonium for the 12 samples were sent to LANL. Results from the isotopic analyses are discussed briefly in Section 3.4; Appendix A provides the entire LANL report for the TIMS analysis.

<u>Other Fallout Radionuclides</u>

Analyses for the other fallout radionuclides (strontium-89+90, cesium-134, and cesium-137) were conducted according to procedures outlined in the GRRASP.

2.4.4 Supporting Data From Group 2 Sampling

All 50 samples were analyzed for total organic carbon (TOC), grain-size distribution, and bulk density. The sampling location and the laboratory method used are presented in Appendix C.

2.5 STATISTICAL METHODS

This section discusses preparation of data for statistical analyses, treatment of non-detects, assessment of data distribution, treatment of outliers, and calculation of means and summary statistics.

2.5.1 Preparation of Data for Statistical Analyses

Data retrieved from RFEDS were prepared for statistical analysis by the following process:

- Remove rejected (i.e., R-validated) data
- Compare rinsate values with CRDL to determine the effectiveness of decontamination procedures

- Compare field duplicates with real-target data to determine relative percent difference (RPD)
- Query for QC Code REAL or DUP for Result Types TRG, REP or DUP
- Average the QC Code REALS and DUPs for each location to arrive at a site mean
- Determine distribution for each analyte (normal, lognormal, or nonparametric)
- Determine outliers using the American Society for Testing and Materials (ASTM) procedure or Rosner outlier test (Rosner, 1975)
- Transform lognormal data, if appropriate
- Count number of locations (averaged REAL/DUP pairs constitute one sample per location)

2.5.2 Treatment of Non-Detects

The percentage of non-detects (results less than the IDL and identified with RFEDS Qualifier code containing a "U") was calculated for the remaining data for metals, SVOCs, pesticides, and PCBs. The frequency of detects was calculated using all available real and duplicate samples. Section 3 discusses analytical results, the frequency of detects, and the maximum detected concentrations. All radionuclide data (excepting rejected and QC data) were considered detected, according to DOE Order 5400.1, which states that "All of the actual values, including those that are negative, *should* be included in the statistical analyses. Practices such as assigning a zero, a detect limit value, or some in-between value to the below-detectable data point, or discarding those data points can severely bias the resulting parameter estimates and *should* be avoided." That is to say, negative and zero values reported for radionuclides should be included "as is" in all statistical analyses.

The results for metals, SVOCs, pesticides, and PCBs that were less than the IDL and qualified with a Qualifier Code "U" were replaced with a value equal to one-half the IDL. In the RFEDS system, the RESULT field generally displays the IDL for "U" or "U*" qualified data for metals and organic analytes. The REPORTING LIMIT field in RFEDS may contain either the IDL, CRDL, or method detection limit (MDL).

2.5.3 Assessment of Distribution and Treatment of Outliers

The data were tested for normality, using both visual and statistical tests. Examination of probability plots for both the actual sample data and log-transformed data provided a visual determination of the distribution type. Statistical tests were then computed on both actual and log-transformed data. The Shapiro-Wilk test was used if data sets contained less than 50 samples and the Lilliefors test was used if data sets contained greater than 50 samples. An upper 95-percent significance was required to assign the distribution type (i.e., normal or lognormal); otherwise, the distribution was classified as nonparametric.

Outlier testing was then performed on either the actual data or log-transformed data, according to the distribution type. Log-transformed data were also used for nonparametric distributions. For data sets of less than 25 samples, the ASTM outlier procedure (ASTM, 1980) was used in an iterative manner. In this case, only one outlier can be determined at a time. The outlier can be removed, statistics for the remaining population recalculated, and outlier testing can be performed again. This process is repeated until all outliers have been detected. For data sets of 25 samples or greater, the Rosner outlier test was used. This test does the interactive outlier testing and flags all outliers on both ends of the distribution. The Rosner Test is designed to avoid masking of one outlier by another (Gilbert, 1987). Masking occurs when an outlier goes undetected because its value is close to the value of another outlier (Gilbert, 1987).

2.5.4 Calculating Location Means

The results for REAL/DUP pairs were averaged for each sample location to compute a site mean for that location. In subsequent statistical analyses, the site mean represented one sample for that location. Eligible data for averaging at each location included all remaining data designated by any combination of REAL or DUP and TRG, DUP, or REP.

2.5.5 Summary Statistics

Summary statistics were computed on the reduced data set. Statistics reported for analytes having less than 80 percent non-detects include the mean, standard deviation, minimum, maximum, and the 99/99 upper tolerance limits (UTLs). For those analytes having more than 80 percent non-detects, only the minimum and maximum values are reported (i.e., the mean, standard deviation, and UTL were not calculated).

Data for metals and naturally occurring radionuclides were compared to data prepared similarly from the Rock Creek data set. Comparison tests between data sets included parametric or nonparametric analysis of variance (ANOVA) between data sets, and graphical comparisons (scatterplots, histograms, box-and-whisker plots, density plots, and probability plots).

Several ANOVA procedures were used, as appropriate for each analyte's distribution. Levene's test is a parametric ANOVA procedure for testing homogeneity for the variances between groups of data. Levene's test is not sensitive to non-normality in the data (EPA, 1992). The Kruskal-Wallis test is a nonparametric test that may be used to test for data shifts between independent data sets (Gilbert, 1987). A 0.05 (5%) significance level was used to determine whether the data sets were significantly different. The comparison test results are presented in Section 4.

SECTION 2

TABLES

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TABLE 2-1

LIST OF GROUP 1 ANALYTES: METALS, NATURALLY OCCURRING RADIONUCLIDES, AND SUPPORTING PARAMETERS (NEARBY SAMPLING SITE)

METALS AND NATURALLY OCCURRING RADIONUCLIDES			
Metals (Target Analyte List and others)			
Aluminum	Chromium	Manganese	Strontium*
Antimony	Cobalt	Mercury	Thallium
Arsenic	Copper	Molybdenum*	Tin*
Barium	Cyanide	Nickel	Vanadium
Beryllium	Iron	Potassium	Zinc
Cadmium	Lead	Selenium	
Calcium	Lithium*	Silver	
Cesium*	Magnesium	Sodium	
Naturally Occurring Radionuclides Metals			
Uranium-233+234	Uranium-238	Radium-228	
Uranium-235	Radium-226		
Chemical Parameters/Physical Properties			
Ammonia	Oil and Grease	pH	Bulk Density
Nitrate/Nitrite	Carbonate	Specific Conductance	Particle Size Distribution
Total Organic Carbon			

* Non-TAL metals

TABLE 2-2

LIST OF GROUP 1 ANALYTES: SELECTED ORGANIC COMPOUNDS (NEARBY SAMPLING SITE)

ORGANIC COMPOUNDS			
Target Compound List (Semivolatiles)			
Phenol	bis(2-Chloroethoxy)methane	Acenaphthene	Fluoranthene
bis(2-Chloroethyl)ether	2,4-Dichlorophenol	2,4-Dinitrophenol	Pyrene
2-Chlorophenol	1,2,4-Trichlorobenzene	4-Nitrophenol	Butylbenzylphthalate
1,3-Dichlorobenzene	Naphthalene	Dibenzofuran	3,3'-Dichlorobenzidine
1,4-Dichlorobenzene	4-Chloroaniline	2,4-Dinitrotoluene	Benzo(a)anthacene
Benzyl alcohol	Hexachlorobutadiene	Diethylphthalate	Chrysene
1,2-Dichlorobenzene	4-Chloro-3-methylphenol (para-chloro-meta-cresol)	4-Chlorophenyl-phenyl ether	bis(2-Ethylhexyl)phthalate
2-Methylphenol	2-Methylnaphthalene	Fluorene	Di-n-octylphthalate
bis(2-Chloroisopropyl)ether	Hexachlorocyclopentadiene	4-Nitroaniline	Benzo(b)fluoranthene
4-Methylphenol	2,4,6-Trichlorophenol	4,6-Dinitro-2-methylphenol	Benzo(k)fluoranthene
N-Nitroso-di-n-propylamine	2,4,5-Trichlorophenol	N-nitrosodiphenylamine	Benzo(a)pyrene
Hexachloroethane	2-Chloronapthalene	4-Bromophenyl-phenylether	Indeno(1,2,3-cd)pyrene
Nitrobenzene	2-Nitroaniline	Hexachlorobenzene	Dibenz(a,h)anthracene
Isophorone	Dimethylphthalate	Pentachlorophenol	Benzo(g,h,i)perylene
2-Nitrophenol	Acenaphthylene	Phenanthrene	
2,4-Dimethylphenol	2,6-Dinitrotoluene	Anthracene	
Benzoic acid	3-Nitroaniline	Di-n-butylphthalate	
Target Compound List (Pesticides and PCBs)			
alpha-BHC	Endosulfan I	Methoxychlor	AROCLOR-1232
beta-BHC	Dieldrin	Endrin Ketone	AROCLOR-1242
delta-BHC	4,4'-DDE	alpha-Chlordane	AROCLOR-1248
gamma-BHC (Lindane)	Endosulfan II	gamma-Chlordane	AROCLOR-1254
Heptachlor	4,4'-DDD	Toxaphene	AROCLOR-1260
Aldrin	Endosulfan Sulfate	AROCLOR-1016	
Heptachlor Epoxide	4,4'-DDT	AROCLOR-1221	

TABLE 2-3

LIST OF GROUP 2 ANALYTES: FALLOUT RADIONUCLIDES (REMOTE SAMPLING SITES)

Analytes
Anthropogenic Radionuclides
Americium-241
Cesium-134
Cesium-137
Plutonium-239+240
Strontium-89+90
Physical Parameters
Total Organic Carbon
Bulk Density
Particle Size Distribution

TABLE 2-4

SITE LOCATIONS FOR BSCP GROUP 1 ANALYTES

Site Code	Location Code	Site Description	Latitude* (Degrees North)	Longitude* (Degrees West)	Distance from 903 pad (km)
D1	SS105494	Drainage Soil	39.926	105.223	4.74
D2	SS105394	Drainage Soil	39.928	105.219	4.77
D3	SS105694	Drainage Soil	39.922	105.213	3.96
D4	SS106994	Drainage Soil	39.923	105.200	3.83
D5	SS107094	Drainage Soil	39.926	105.203	4.15
D6	SS106294	Drainage Soil	39.919	105.185	3.62
P1	SS106794	Pediment Soil	39.920	105.226	4.30
P2	SS106894	Pediment Soil	39.917	105.230	4.15
P3	SS106594	Pediment Soil	39.934	105.227	5.66
P4	SS106394	Pediment Soil	39.938	105.229	6.17
P5	SS106494	Pediment Soil	39.939	105.227	6.15
P6	SS107194	Pediment Soil	39.927	105.192	4.29
P7	SS107294	Pediment Soil	39.923	105.193	3.90
V1	SS106694	Valley/Hill-slope Soil	39.933	105.227	5.52
V2	SS105594	Valley/Hill-slope Soil	39.925	105.220	4.46
V3	SS105794	Valley/Hill-slope Soil	39.920	105.213	3.74
V4	SS105894	Valley/Hill-slope Soil	39.916	105.210	3.26
V5	SS105994	Valley/Hill-slope Soil	39.922	105.197	3.77
V6	SS106094	Valley/Hill-slope Soil	39.926	105.196	4.21
V7	22SS106194	Valley/Hill-slope Soil	39.920	105.190	3.58

*Latitudes and longitudes corrected for NAD 1927 datum.

TABLE 2-5

SITE LOCATIONS FOR BSCP GROUP 2 ANALYTES

Site Code	Location Code	Site Description	Owner	Latitude[b] (Degrees North)	Longitude[b] (Degrees West)	Distance from 903 Pad (km)
AF1[a]	SS110394	Air Force Academy N of Colorado Springs	USAF	38.949	104.815	109.325
AF2	SS110494	Air Force Academy N of Colorado Springs	USAF	38.977	104.829	106.090
AF3	SS110594	Air Force Academy N of Colorado Springs	USAF	39.029	104.848	100.044
BE1[a]	SS107794	Beech Open Space N of Boulder	Boulder County	40.088	105.277	23.143
BE2	SS107694	Beech Open Space N of Boulder	Boulder County	40.098	105.277	24.248
BE3	SS107594	Beech Open Space N of Boulder	Boulder County	40.096	105.275	24.019
CM1	SS110694	Colorado School of Mines, West of Golden	Colorado School of Mines	39.734	105.219	17.288
CM2	SS110794	Colorado School of Mines, West of Golden	Colorado School of Mines	39.737	105.220	16.956
CM3	SS110894	Colorado School of Mines, West of Golden	Colorado School of Mines	39.740	105.223	16.678
CR1[a]	SS110294	Chatfield Reservoir Area SW of Denver	Colorado State Parks	39.536	105.090	40.247
DP1[a]	SS109894	Daniels Park NW of Castle Rock	Denver Mountain Parks	39.480	104.920	51.285
DP2	SS109994	Daniels Park NW of Castle Rock	Denver Mountain Parks	39.485	104.921	50.662
DP3	SS110094	Daniels Park NW of Castle Rock	Denver Mountain Parks	39.474	104.919	51.886
DR1	SS104394	Dixon Reservoir Area West of Fort Collins	City of Fort Collins	40.549	105.142	73.484
DR2[a]	SS104194	Dixon Reservoir Area West of Fort Collins	City of Fort Collins	40.546	105.141	73.133
DR3	SS104294	Dixon Reservoir Area West of Fort Collins	City of Fort Collins	40.540	105.135	72.589
ES1[a]	SS108294	Eldorado Springs Area NW of Rocky Flats	Boulder City Parks	39.937	105.257	7.400
ES2	SS108394	Eldorado Springs Area NW of Rocky Flats	Boulder City Parks	39.942	105.260	7.995
ES3	SS108494	Eldorado Springs Area NW of Rocky Flats	Boulder City Parks	39.947	105.260	8.373
FW1	SS109394	Foothills Water Treatment Plant SW of Denver	Denver Water Board	39.468	105.061	48.090
FW2	SS109494	Foothills Water Treatment Plant SW of Denver	Denver Water Board	39.469	105.055	48.106
GM1[a]	SS108594	Green Mountain Park West of Denver	City of Lakewood	39.705	105.180	20.451
GM2	SS108694	Green Mountain Park West of Denver	City of Lakewood	39.699	105.170	21.125
GM3	SS108794	Green Mountain Park West of Denver	City of Lakewood	39.701	105.188	20.778
JP1	SS109294	Private Ranch in Parry Park West of Larkspur	Private Ranch (John Palk)	39.270	104.971	71.388
JP2	SS111194	Private Ranch in Parry Park West of Larkspur	Private Ranch (John Palk)	39.271	104.971	71.239
JP3	SS111094	Private Ranch in Parry Park West of Larkspur	Private Ranch (John Palk)	39.273	104.973	70.990
LH1[a]	SS105294	Lon Hagler Reservoir Area SW of Loveland	Colorado State Parks	40.362	105.151	52.706
MR1	SS107994	Mesa Reservoir Trail N of Boulder	Boulder County Parks	40.071	105.286	21.591
MR2	SS108094	Mesa Reservoir Trail N of Boulder	Boulder County Parks	40.075	105.276	21.834
MR3	SS108194	Mesa Reservoir Trail N of Boulder	Boulder County Parks	40.072	105.264	21.188

Table 2-5. (continued).

Site Code	Location Code	Site Description	Owner	Latitude[b] (Degrees North)	Longitude[b] (Degrees West)	Distance from 903 Pad (km)
MW1[a]	SS108894	Matthew Winters Park N of Morrison	Jefferson County	39.690	105.207	21.997
MW2	SS108994	Matthew Winters Park N of Morrison	Jefferson County	39.686	105.207	22.451
PP1	SS110194	Parry Pines Park S of Sedalia	Douglas County Parks	39.322	104.954	66.280
PR1[a]	SS109594	Pinecliff Ranch S of Sedalia	Colorado Open Space (Private)	39.385	104.990	58.717
PR2	SS109694	Pinecliff Ranch S of Sedalia	Colorado Open Space (Private)	39.389	104.980	58.557
PR3	SS109794	Pinecliff Ranch S of Sedalia	Colorado Open Space (Private)	39.356	104.997	61.621
RM1	SS107394	Rabbit Mountain Open Space E of Lyons	Boulder County Parks	40.247	105.215	39.818
RM2	SS107494	Rabbit Mountain Open Space E of Lyons	Boulder County Parks	40.256	105.214	40.841
RM3	SS107894	Rabbit Mountain Open Space E of Lyons	Boulder County Parks	40.249	105.206	40.000
RR1	SS109094	Red Rocks Park N of Morrison	Denver Mountain Parks	39.655	105.199	25.889
RR2	SS109194	Red Rocks Park N of Morrison	Denver Mountain Parks	39.668	105.201	24.529
TH1	SS104494	Taft Hill Road S of Fort Collins	City of Fort Collins	40.514	105.111	69.884
TH2	SS104594	Taft Hill Road S of Fort Collins	City of Fort Collins	40.512	105.107	69.713
TH3[a]	SS105194	Taft Hill Road S of Fort Collins	City of Fort Collins	40.511	105.113	69.480
TM1	SS104694	Table Mountain Antennae Site N of Boulder	NOAA (Department of Commerce)	40.145	105.235	28.614
TM2	SS104794	Table Mountain Antennae Site N of Boulder	NOAA (Department of Commerce)	40.138	105.245	28.003
TM3[a]	SS104894	Table Mountain Antennae Site N of Boulder	NOAA (Department of Commerce)	40.125	105.248	26.621
TM4	SS104994	Table Mountain Antennae Site N of Boulder	NOAA (Department of Commerce)	40.141	105.252	28.379
TM5	SS105094	Table Mountain Antennae Site N of Boulder	NOAA (Department of Commerce)	40.130	105.233	26.962

[a] Analyzed by TIMS for plutonium isotopic ratios
[b] Latitudes and longitudes corrected for NAD 1927 datum.

TABLE 2-6

SAMPLE CONTAINERS AND HOLDING TIMES FOR SOIL SAMPLES

Parameter	Container	Holding Time (Days)
TAL metals plus Cs, Li, Mo, Sn, Sr	1 x 250 ml wide-mouth glass jar	180[1]
TCL semivolatiles, pesticides, and PCBs	1 x 250 ml wide-mouth Teflon-lined jar	7 until extraction, 40 after extraction
Fallout and naturally occurring radionuclides	1 x 1 L wide-mouth glass jar	180
TOC, anions, pH, specific conductance and oil and grease	1 x 250 ml wide-mouth glass jar	28
Bulk density and particle-size distribution	1 gallon plastic jug	None

[1] Holding time for mercury is 28 days

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SECTION 2

FIGURES

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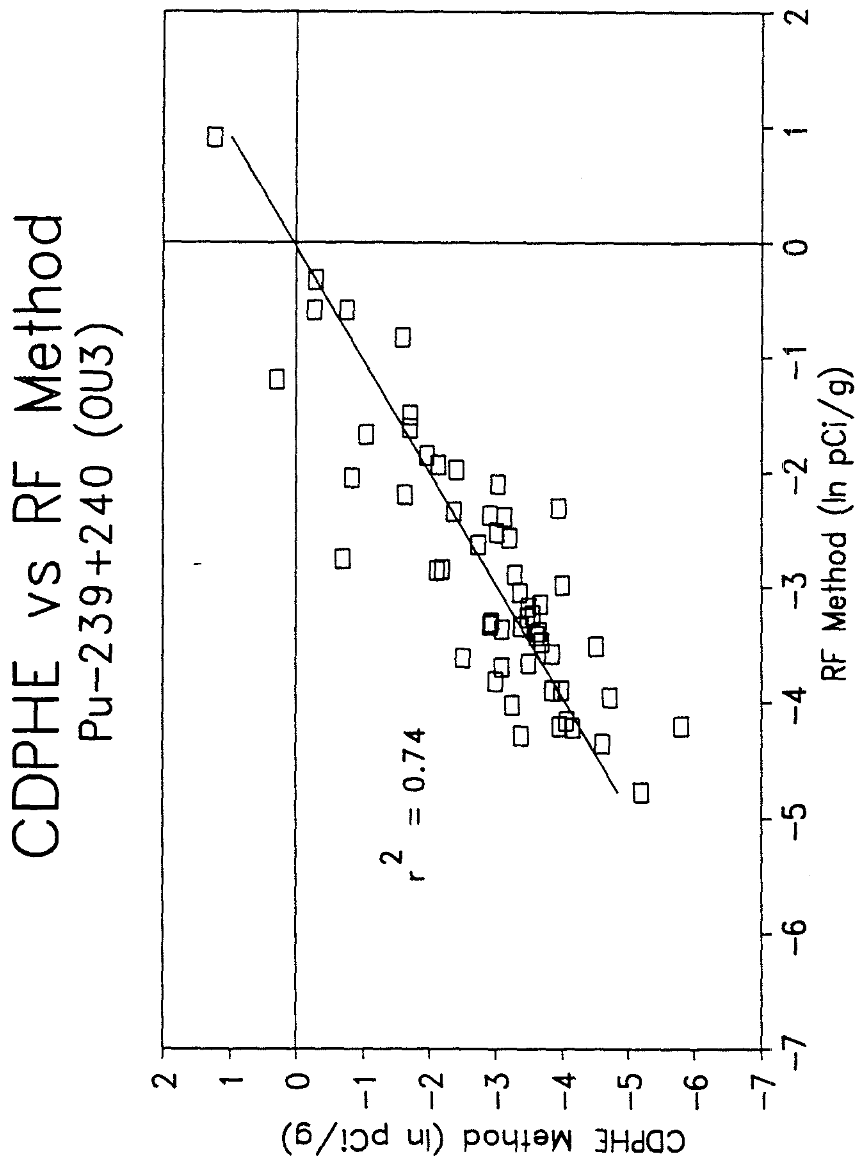

PREPARED FOR
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ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE, GOLDEN, COLORADO

FIGURE 2-1

COMPARISON OF Pu-239+240
FROM CDPHE AND RF SAMPLING
METHODS FROM 0U3 DATA SET

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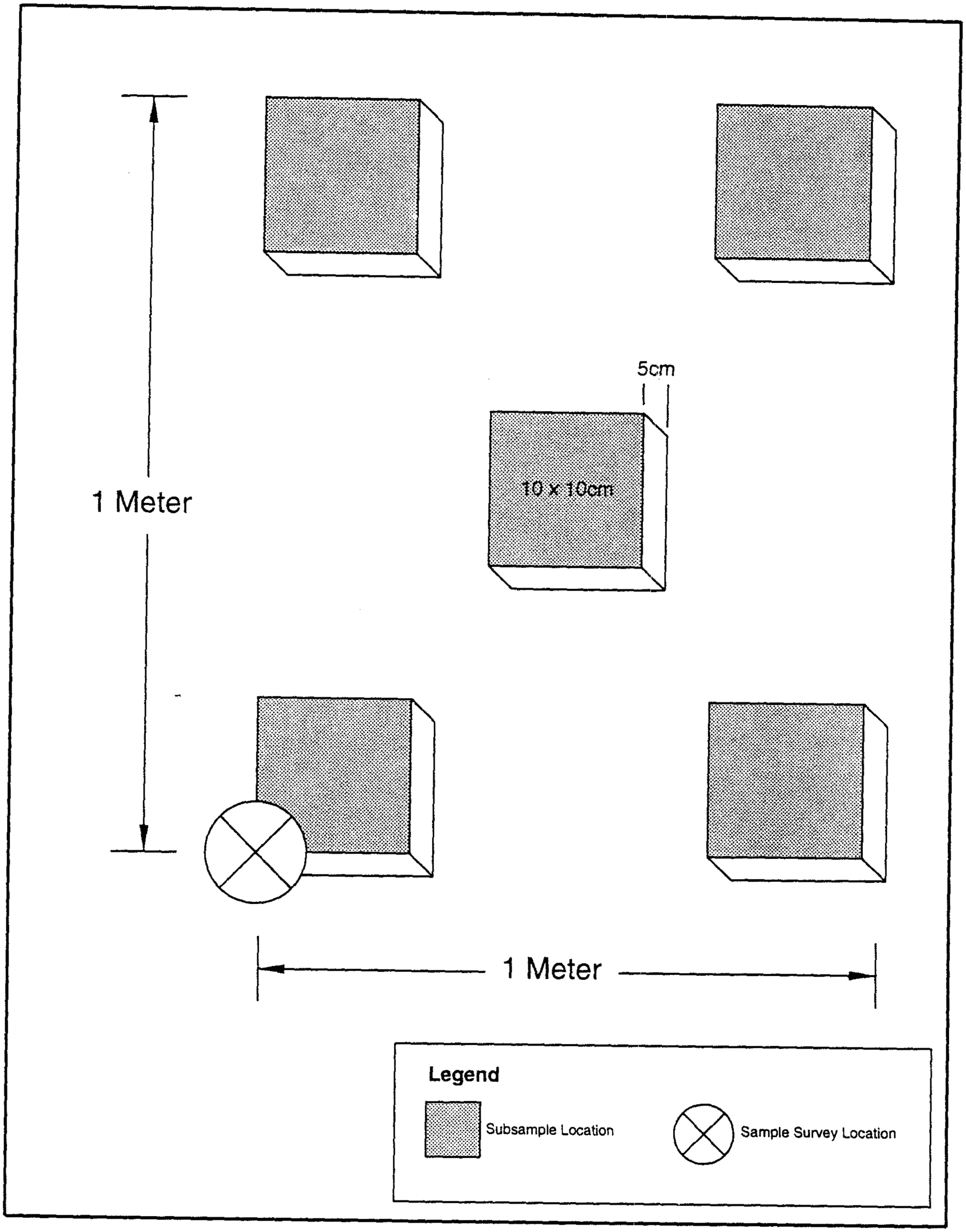

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FIGURE 2-4

ROCKY FLATS METHOD FOR
SOIL SAMPLING:
LOCATION AND SPACING

3.0 BSCP DATA: STATISTICAL SUMMARY OF ANALYTICAL RESULTS

Analytes sampled for the BSCP study were grouped based on collection regions. As detailed in Section 2, the regions were categorized as being either Group 1 (nearby) or Group 2 (remote). Group 1 analytes include metals, naturally occurring radionuclides, organic compounds, and additional supporting data measured in samples collected from 20 sampling locations in Boulder County Open Space, just north of RFETS (Section 3.1). Concentrations of the Group 1 analytes in three soil types (i.e., pediment, hillslope, and drainage-way soils) were compared using nonparametric ANOVA (Section 3.2). Group 2 analytes consist of fallout radionuclides (americium-241, cesium-134, cesium-137, plutonium-239+240, and strontium-89+90) and other supporting data measured in samples collected from 50 sampling locations along the Front Range (Section 3.3). In addition, 12 of the 50 samples collected for Group 2 were used to establish a regional baseline for the isotope ratios of plutonium-240/plutonium-239 and plutonium-241/plutonium-239, based on mass-spectroscopy analyses. Discussion of the plutonium isotope ratios and the isotopic data from this regional baseline study are presented in Section 3.4. Raw data for both Group 1 and Group 2 analytes are provided in Appendix B.

3.1 BSCP DATA: SUMMARY STATISTICS FOR GROUP 1 ANALYTES

Data for Metals, Naturally Occurring Radionuclides, and Supporting Parameters

For each analyte having a detect rate of greater than 20 percent, the type of distribution, the number of records, the non-detect rate (values below the IDL for that analyte), the minimum and maximum values, the 99/99 UTL, the mean, and the standard deviation were calculated (Tables 3-1 and 3-2). For analytes detected in less than 20 percent of the samples collected, only the minimum and maximum values are reported (Tables 3-1 and 3-2). A description of the statistical methods used for analysis of the data is provided in Section 2.5 of this report.

Analytes for which the non-detect rate is greater than 80 percent include antimony, cesium, molybdenum, silver, thallium, and tin. Because of the uncertainty associated with calculating statistical parameters for analytes that have a large percentage of the results reported as less than the IDL, it is recommended that — for such heavily censored data sets — the results of inferential statistics not be used for management or decision-making purposes (Helsel, 1990; Gilbert and Simpson, 1992)

Data for Organic Compounds

In addition to metals and naturally occurring radionuclides, Group 1 samples were also analyzed for certain organic compounds (see Table 2-2). Only two compounds — bis(2-ethylhexyl)phthalate and di-n-butyl phthalate — were detected. However, evaluation of the laboratory blanks associated with these samples indicated that the detected concentrations are due to laboratory contamination. Table 3-3 presents the observed results for the estimated values and the associated laboratory blanks.

3.2 COMPARISONS OF BSCP GROUP 1 ANALYTES BY SOIL TYPE

As stated in the *Background Soils Characterization Plan* (DOE, 1994), the concentrations of analytes in three different soil types (pediment, valley/hill-slope, and drainage-way soils) were compared using nonparametric ANOVA (Table 3-4). The comparison between the three soil types was intended to provide the data user with information concerning the possible differences in analyte concentrations that may occur depending on the soil type studied for a specific investigation. However, because only the top 5 cm of soil was sampled for the BSCP study, the results may not reflect the topographic influences that modify soil geochemistry. Such topographic influences are described as a soil "cantena" or "toposequence" (Birkeland, 1984).

Due to the small sample size for each soil type (n = 7 for pediment soils, n = 7 for valley/hill-slope soils, and n = 6 for drainage-way soils), the results of the ANOVA testing are tentative, at best. Only arsenic, lead, mercury, molybdenum, and radium-228 showed any statistically significant differences between the three soil types (Table 3-4), and high non-detect rates invalidate the results for some analytes. Because of the limited value of this comparison, the results are not discussed further in this report.

3.3 BSCP DATA: SUMMARY STATISTICS FOR GROUP 2 ANALYTES

Summary statistics were calculated for analytical data for the 50 samples collected from the remote (Group 2) sampling sites (Table 3-5). A single outlier for plutonium was not used to calculate the summary statistics, because this datum is believed to be the result of laboratory error. This single datum is 4.6 times higher than the maximum value measured for the other 49 samples (0.35 versus 0.076 pCi/g), and nearly 10 times higher than the mean activity measured for these other 49 samples (0.35 versus 0.035 pCi/g).

To confirm or refute this isolated high datum, the originating laboratory was requested to analyze another 3-gram aliquot size on the remaining raw soil sample (approximately 500 grams) for that location. This 3-gram aliquot and the corresponding laboratory replicate were determined to have activity levels of 0.029 and 0.025 pCi/g, respectively. In addition, when an aliquot from a duplicate field sample was similarly analyzed, the results for the duplicate aliquot and its replicate were 0.032 and 0.031 pCi/g, respectively. Although the original sample aliquot for that location may have contained sufficient plutonium to exhibit an activity of 0.35 pCi/g (hot-particle theory), the remoteness of the sample and the analytical results for the two additional aliquots indicate that the outlier is more likely due to laboratory error rather than to elevated plutonium levels in the environment. The outlier datum, however, remains in RFEDS because there is no protocol to eliminate the record, which has been validated.

3.4 GROUP 2 SAMPLES: PLUTONIUM ISOTOPE RATIOS

Twelve of the 50 Group 2 samples were randomly selected for analysis by TIMS, in order to measure the plutonium-240/plutonium-239 ratio. A subset of four of these twelve samples was also analyzed by TIMS for the plutonium-241/plutonium-239 ratio.

The TIMS analyses was contracted to LANL; however, to be cost-effective, the twelve samples were prepared by the primary lab contractor for radionuclide analysis (Thermal Analytical Inc.), but the standard procedure was somewhat modified, with respect to aliquot size. Normally, in accordance with GRRASP, 3-gram aliquots of soil are completely dissolved and prepared for alpha-spectroscopy by electroplating the recovered plutonium onto stainless-steel planchettes. However, because of the low levels of plutonium that were expected in these background samples, the larger aliquot size was deemed necessary by the principal investigator at LANL to ensure there was sufficient plutonium for the TIMS analysis. The principal investigator at LANL also requested that a specific plutonium tracer be used for the preparation of the TIMS samples instead of the tracer normally used by Thermal Analytical Inc. for 3-gram samples.

The primary objective of preparing the 10-gram aliquot samples was to provide enough plutonium on the planchette for TIMS analyses; however, the plutonium activities measured from the 3-gram aliquots and the 10-gram aliquots for the same locations are not directly comparable. An error analysis based on aliquot size differences and the use of different tracers is beyond the scope of this report.

Sampling locations for the twelve samples selected for determination of plutonium isotope ratios are shown on Figure 2-2; Table 3-6 presents the results of the TIMS analysis for plutonium isotope ratios. A complete description of the TIMS analysis is included in Appendix A.

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SECTION 3

TABLES

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TABLE 3-1

SUMMARY STATISTICS FOR BSCP GROUP 1 ANALYTES: METALS AND NATURALLY OCCURRING RADIONUCLIDES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	Tol Fact	99/99 UTL[a]	Units
Aluminum	Normal	20	0	4050	17100	10244	3329	3.8316	22999	mg/kg
Antimony	X	20	96	.19U	0.47	X	X	3.8316	X	mg/kg
Arsenic	Normal	20	0	2.3	9.6	6.09	2	3.8316	13.75	mg/kg
Barium	Normal	20	0	45.7	134	102.4	19.43	3.8316	176	mg/kg
Beryllium	Normal	20	0	0.24	0.9	0.66	0.153	3.8316	1.25	mg/kg
Cadmium	Nonparam	20	39	.295U	2.3	0.714	0.449	3.8316	2.335	mg/kg
Calcium	Normal	20	0	1450	4550	2969	749	3.8316	5839	mg/kg
Cesium	X	20	100	6.05U	7U	X	X	3.8316	X	mg/kg
Chromium	Normal	20	0	5.5	16.9	11.29	2.85	3.8316	22.21	mg/kg
Cobalt	Normal	20	0	3.4	11.2	7.29	1.81	3.8316	14.22	mg/kg
Copper	Nonparam	20	0	5.2	15.85	12.94	2.56	3.8316	22.75	mg/kg
Iron	Normal	20	0	7390	18100	12549	2744	3.8316	23063	mg/kg
Lead	Normal	20	0	8.6	53.3	33.6	10.51	3.8316	73.87	mg/kg
Lithium	Lognormal	20	0	4.8	11.6	7.69	1.93	3.8316	15.08	mg/kg
Magnesium	Lognormal	20	0	1310	2800	1913.1	468.1	3.8316	3707	mg/kg
Manganese	Normal	20	0	129	357	237.3	63.89	3.8316	482.1	mg/kg
Mercury	Lognormal	20	65	.04U	0.12	0.072	0.031	3.8316	0.191	mg/kg
Molybdenum	X	20	91	.29U	0.9U	X	X	3.8316	X	mg/kg
Nickel	Normal	20	0	3.8	14	9.63	2.64	3.8316	19.74	mg/kg
Potassium	Normal	20	0	1110	2830	2061.2	453	3.8316	3797	mg/kg
Selenium	Nonparam	20	39	.29U	1.4	0.634	0.295	3.8316	1.76	mg/kg
Silicon	Normal	20	0	934	1650	1383.5	179	3.8316	2069	mg/kg
Silver	X	20	100	.19U	.22U	X	X	3.8316	X	mg/kg
Sodium	Lognormal	20	0	43.8	105	62.16	14.84	3.8316	119.02	mg/kg
Strontium	Lognormal	20	0	9.6	45.2	28.44	10.25	3.8316	67.92	mg/kg
Thallium	X	14*	100	.385U	.445U	X	X	4.2224	X	mg/kg
Tin	X	20	91	1.35U	2.9	X	X	3.8316	X	mg/kg
Vanadium	Normal	20	0	10.8	45.8	27.85	8.87	3.8316	61.84	mg/kg
Zinc	Normal	20	0	21.1	75.9	49.56	12.1	3.8316	95.92	mg/kg
Radium-226	Lognormal	20	0	0.1	0.805	0.619	0.153	3.8316	1.20	pCi/g
Radium-228	Normal	20	0	0.2	2.3	1.35	0.48	3.8316	3.189	pCi/g
Uranium-233/234	Lognormal	20	0	0.6	3.1	1.097	0.578	3.8316	3.31	pCi/g
Uranium-235	Lognormal	20	0	0.11	0.34	0.0539	0.02	3.8316	0.13	pCi/g
Uranium-238	Lognormal	20	0	0.74	2.6	1.09	0.455	3.8316	2.83	pCi/g

a = All UTLs calculated assuming a normal distribution.
X = Not applicable because > 80% of data were non-detects.
% Non-detects are calculated from all accepted valid data except equipment rinsates.
Min and Max values: lowest/highest detected value or, if no detected values, 1/2 IDL followed by U.
Uranium-238 had 2 outliers removed for calculation of UTL; outliers retained for summary statistics.
* Six thallium samples were rejected during the validation process.

TABLE 3-2

SUMMARY STATISTICS FOR BSCP GROUP 1 ANALYTES: SUPPORTING DATA TYPES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	99/99 UTL	Mean	Standard Deviation	Units
Ammonia	Normal*	20	39	0.5U	7	NC	2.0333	1.8977	mg/kg
Carbonate	Normal*	20	100	5U	5.5U	NC	X	X	mg/kg
Nitrate/Nitrite	Normal*	20	0	2	7	NC	4	1.6859	mg/kg
Oil & Grease	Normal*	20	0	52	130	NC	94.575	19.325	mg/kg
pH	Normal*	20	NA	6	6.8	NC	6.3575	0.2424	pH
Specific Cond.	Normal*	20	NA	0.1	0.53	NC	0.2083	0.0896	mmhos/cm
TOC	Normal*	20	0	4920	17600	NC	16133	2696.9	mg/kg
% Clay	Normal*	20	0	7	36	NC	20.45	8.62	%
% Sand	Normal*	20	0	22	76	NC	43.93	15.27	%
% Silt	Normal*	20	0	18	45.5	NC	35.76	7.52	%
Bulk Density	Normal*	20	0	0.9	1.2	NC	0.923	0.07	g/cm^3

Normal* : Distribution assumed to be normal for summary statistics of supporting data
NC = Not calculated
TOC = Total Organic Carbon
Min and Max Values: lowest/highest value detected if no detached values, 1/2 IDL followed by U.
X = Not applicable because greater than 80% were non-detects.

TABLE 3-3

BSCP SEMIVOLATILE ORGANIC COMPOUNDS: ESTIMATED VALUES vs ASSOCIATED LABORATORY BLANK

Chemical Name	Site	Location	Sample #	Type	Qual	Result	Unit
Bis(2-ethylhexyl)phthalate	V3	SS105794	SS00109EG	REAL	J	75	μg/kg
Bis(2-ethylhexyl)phthalate	P4	SS106394	SS00115EG	REAL	J	91	μg/kg
Di-n-butyl phthalate	P7	SS107294	SS00125EG	REAL	J	160	μg/kg
Bis (2-ethylhexyl)phthalate	—	Lab Blank	SBLK1	BLK	—	660	μg/kg
Di-n-butyl phthalate	—	Lab Blank	SBLK2	BLK	—	110	μg/kg

Note that each value for sites V3, P4, and P7 is less than 10X the laboratory blank samples.

TABLE 3-4

GROUP 1 ANALYTES: NONPARAMETRIC ANOVA BY SOIL TYPE

Element	Comparison	Kruskal-Wallis Stat	Significance	Different?
Aluminum	Drainage - Pediment	0.5116	0.4744	no
	Pediment - Valley Slopes	0.0367	0.8480	no
	Drainage - Valley Slopes	2.4760	0.1156	no
Antimony	Drainage - Pediment	0.4155	0.5192	no
	Pediment - Valley Slopes	0.0000	1.0000	no
	Drainage - Valley Slopes	0.8646	0.3524	no
Arsenic	Drainage - Pediment	9.0000	0.0027	yes
	Pediment - Valley Slopes	5.6001	0.0180	yes
	Drainage - Valley Slopes	7.3876	0.0066	yes
Barium	Drainage - Pediment	0.3274	0.5672	no
	Pediment - Valley Slopes	0.2009	0.6540	no
	Drainage - Valley Slopes	0.8670	0.3518	no
Beryllium	Drainage - Pediment	1.1511	0.2833	no
	Pediment - Valley Slopes	0.2618	0.6080	no
	Drainage - Valley Slopes	1.0000	0.3173	no
Cadmium	Drainage - Pediment	4.0110	0.0452	no
	Pediment - Valley Slopes	0.0370	0.8475	no
	Drainage - Valley Slopes	2.9550	0.0856	no
Calcium	Drainage - Pediment	0.0816	0.7751	no
	Pediment - Valley Slopes	0.6898	0.4062	no
	Drainage - Valley Slopes	0.1837	0.6682	no
Cesium	Drainage - Pediment	0.8670	0.3518	no
	Pediment - Valley Slopes	2.4147	0.1202	no
	Drainage - Valley Slopes	0.0835	0.7727	no
Chromium	Drainage - Pediment	2.2562	0.1331	no
	Pediment - Valley Slopes	0.0041	0.9491	no
	Drainage - Valley Slopes	1.8469	0.1741	no
Cobalt	Drainage - Pediment	0.3265	0.5677	no
	Pediment - Valley Slopes	0.0164	0.8982	no
	Drainage - Valley Slopes	0.5102	0.4751	no
Copper	Drainage - Pediment	3.7296	0.0535	no
	Pediment - Valley Slopes	0.2009	0.6540	no
	Drainage - Valley Slopes	1.0055	0.3160	no
Iron	Drainage - Pediment	2.0408	0.1531	no
	Pediment - Valley Slopes	0.2000	0.6547	no
	Drainage - Valley Slopes	1.6531	0.1985	no
Lead	Drainage - Pediment	9.0000	0.0027	yes
	Pediment - Valley Slopes	2.3562	0.1248	no
	Drainage - Valley Slopes	4.9166	0.0266	yes

Table 3-4. (continued).

Element	Comparison	Kruskal-Wallis Stat	Significance	Different?
Lithium	Drainage - Pediment	0.6190	0.4314	no
	Pediment - Valley Slopes	0.0164	0.8982	no
	Drainage - Valley Slopes	0.1837	0.6682	no
Magnesium	Drainage - Pediment	0.0204	0.8864	no
	Pediment - Valley Slopes	0.2000	0.6547	no
	Drainage - Valley Slopes	0.3265	0.5677	no
Manganese	Drainage - Pediment	1.6531	0.1985	no
	Pediment - Valley Slopes	1.1796	0.2774	no
	Drainage - Valley Slopes	0.0204	0.8864	no
Mercury	Drainage - Pediment	4.0670	0.0437	yes
	Pediment - Valley Slopes	3.0153	0.0825	no
	Drainage - Valley Slopes	0.0490	0.8248	no
Molybdenum	Drainage - Pediment	1.3243	0.2498	no
	Pediment - Valley Slopes	4.2073	0.0402	yes
	Drainage - Valley Slopes	0.1862	0.6661	no
Nickel	Drainage - Pediment	0.3265	0.5677	no
	Pediment - Valley Slopes	0.0041	0.9491	no
	Drainage - Valley Slopes	0.5102	0.4751	no
Potassium	Drainage - Pediment	0.1837	0.6682	no
	Pediment - Valley Slopes	0.0367	0.8480	no
	Drainage - Valley Slopes	0.7347	0.3914	no
Selenium	Drainage - Pediment	1.0055	0.3160	no
	Pediment - Valley Slopes	0.9184	0.3379	no
	Drainage - Valley Slopes	0.0204	0.8864	no
Silicon	Drainage - Pediment	0.0051	0.9430	no
	Pediment - Valley Slopes	0.0041	0.9491	no
	Drainage - Valley Slopes	0.0051	0.9430	no
Silver	Drainage - Pediment	0.7554	0.3848	no
	Pediment - Valley Slopes	1.2569	0.2622	no
	Drainage - Valley Slopes	0.0487	0.8253	no
Sodium	Drainage - Pediment	0.0204	0.8864	no
	Pediment - Valley Slopes	0.4939	0.4822	no
	Drainage - Valley Slopes	0.5102	0.4751	no
Strontium	Drainage - Pediment	0.0816	0.7751	no
	Pediment - Valley Slopes	0.1020	0.7494	no
	Drainage - Valley Slopes	0.0204	0.8864	no
Thallium	Drainage - Pediment	0.7412	0.3893	no
	Pediment - Valley Slopes	3.3041	0.0691	no
	Drainage - Valley Slopes	0.0760	0.7827	no
Tin	Drainage - Pediment	0.0819	0.7748	no
	Pediment - Valley Slopes	0.1025	0.7489	no
	Drainage - Valley Slopes	0.0206	0.8859	no

Table 3-4. (continued).

Element	Comparison	Kruskal-Wallis Stat	Significance	Different?
Vanadium	Drainage - Pediment	1.3061	0.2531	no
	Pediment - Valley Slopes	0.0041	0.9491	no
	Drainage - Valley Slopes	2.0408	0.1531	no
Zinc	Drainage - Pediment	0.3265	0.5677	no
	Pediment - Valley Slopes	0.2618	0.6089	no
	Drainage - Valley Slopes	0.0000	1.0000	no
Radium-226	Drainage - Pediment	2.0464	0.1526	no
	Pediment - Valley Slopes	3.6979	0.0545	no
	Drainage - Valley Slopes	0.0819	0.7748	no
Radium-228	Drainage - Pediment	2.2624	0.1325	no
	Pediment - Valley Slopes	4.7814	0.0288	yes
	Drainage - Valley Slopes	0.0210	0.8847	no
Uranium-233/234	Drainage - Pediment	0.4249	0.5145	no
	Pediment - Valley Slopes	2.3771	0.1231	no
	Drainage - Valley Slopes	2.7064	0.0999	no
Uranium-235	Drainage - Pediment	2.2624	0.1325	no
	Pediment - Valley Slopes	0.4100	0.5220	no
	Drainage - Valley Slopes	3.4490	0.0633	no
Uranium-238	Drainage - Pediment	0.0210	0.8847	no
	Pediment - Valley Slopes	3.0086	0.0828	no
	Drainage - Valley Slopes	2.0464	0.1526	no
Ammonia	Drainage - Pediment	0.1949	0.6589	no
	Pediment - Valley Slopes	0.4370	0.5086	no
	Drainage - Valley Slopes	0.0217	0.8828	no
Carbonate	Drainage - Pediment	0.0000	1.0000	no
	Pediment - Valley Slopes	0.7619	0.3827	no
	Drainage - Valley Slopes	0.5786	0.4469	no
Nitrate/Nitrite	Drainage - Pediment	0.3680	0.5441	no
	Pediment - Valley Slopes	0.2182	0.6404	no
	Drainage - Valley Slopes	0.1910	0.6621	no
Oil & Grease	Drainage - Pediment	0.6259	0.4288	no
	Pediment - Valley Slopes	0.1034	0.7478	no
	Drainage - Valley Slopes	0.3283	0.5666	no
pH	Drainage - Pediment	0.6648	0.4149	no
	Pediment - Valley Slopes	0.1555	0.6934	no
	Drainage - Valley Slopes	0.1301	0.7184	no
Specific Conductivity	Drainage - Pediment	0.5130	0.4738	no
	Pediment - Valley Slopes	0.0371	0.8473	no
	Drainage - Valley Slopes	0.8767	0.3491	no
Total Organic Carbon	Drainage - Pediment	0.0207	0.8856	no
	Pediment - Valley Slopes	1.7156	0.1903	no
	Drainage - Valley Slopes	0.1290	0.7195	no

Table 3-4. (continued).

Element	Comparison	Kruskal-Wallis Stat	Significance	Different?
% Clay	Drainage - Pediment	1.3133	0.2518	no
	Pediment - Valley Slopes	2.1735	0.1404	no
	Drainage - Valley Slopes	0.0823	0.7742	no
% Sand	Drainage - Pediment	0.5116	0.4744	no
	Pediment - Valley Slopes	1.4865	0.2228	no
	Drainage - Valley Slopes	0.0000	1.0000	no
% Silt	Drainage - Pediment	0.0052	0.9426	no
	Pediment - Valley Slopes	0.2641	0.6073	no
	Drainage - Valley Slopes	0.0051	0.9428	no
Max Bulk Density	Drainage - Pediment	2.5278	0.1119	no
	Pediment - Valley Slopes	0.0000	1.0000	no
	Drainage - Valley Slopes	2.5278	0.1129	no

TABLE 3-5

SUMMARY STATISTICS FOR BSCP GROUP 2 ANALYTES: FALLOUT RADIONUCLIDES AND SUPPORTING DATA

Analyte	Distri-bution	Count (n)	% Non-Detect	Min	Max	Tol Fact	99/99 UTL	Mean	S.D.	Units
Fallout Radionuclides										
Americium-241	Nonparam	50	0	0.001	0.025	3.1369	0.037	0.0107	0.006	pCi/g
Cesium-134	Nonparam	50	0	0.05	0.3	3.1369	0.369	0.2	0.056	pCi/g
Cesium-137	Lognormal	50	0	0.3	1.7	3.1369	2.25	0.941	0.372	pCi/g
Plutonium-239/240	Lognormal	50	0	0.017	0.072	3.1369	0.084	0.038	0.014	pCi/g
Strontium-89/90	Lognormal	50	0	0.065	0.64	3.1369	0.708	0.254	0.128	pCi/g
Supporting Data										
% Clay	Normal*	50	0	1	34	X	X	11.58	6.37	%
% Sand	Normal*	50	0	24	78	X	X	53.29	11.97	%
% Silt	Normal*	50	0	20	51	X	X	35.21	7.49	%
Soil density	Normal*	50	0	0.8	1.2	X	X	0.944	0.78	g/cm^3
Total Organic Carbon	Normal*	50	0	1.4	6.05	X	X	3.66	1.24	%

X = Not calculated or not applicable
Normal*: Distribution assumed normal for summary statistics of supporting data
S.D. = standard deviation

TABLE 3-6

$^{240}Pu/^{239}Pu$ and $^{241}Pu/^{239}Pu$ ISOTOPE RATIOS

Site	Location	Sample Number	$^{240}Pu/^{239}Pu$	Standard Deviation	$^{241}Pu/^{239}Pu$	Standard Deviation	Units
TM3	SS104894	SS00099EG	0.14	0.008	not analyzed	X	pCi/g
PR1	SS109594	SS00149EG	0.143	0.006	0.003	0.0002	pCi/g
GM1	SS108594	SS00138EG	0.148	0.007	0.003	0.0005	pCi/g
ES1	SS108294	SS00135EG	0.151	0.002	0.0033	0.0006	pCi/g
BE1	SS107794	SS00130EG	0.153	0.004	not analyzed	X	pCi/g
TH3	SS105194	SS00102EG	0.154	0.011	not analyzed	X	pCi/g
DP1	SS109894	SS00152EG	0.155	0.004	0.0028	0.0015	pCi/g
AF1	SS110394	SS00157EG	0.156	0.026	not analyzed	X	pCi/g
LH1	SS105294	SS00104EG	0.16	0.005	not analyzed	X	pCi/g
CR1	SS110294	SS00156EG	0.163	0.035	not analyzed	X	pCi/g
DR2	SS104194	SS00091EG	0.169	0.004	not analyzed	X	pCi/g
MW1	SS108894	SS00141EG	0.17	0.003	not analyzed	X	pCi/g

$^{240}Pu/^{239}Pu$ Ratio
Overall Mean and Standard Deviation = 0.1552 $\pm$ 0.0093

$^{241}Pu/^{239}Pu$ Ratio
Overall Mean and Standard Deviation = 0.0030 $\pm$ 0.0002

X = Not applicable because the $^{241}Pu/^{239}Pu$ ratio was not determined.

4.0 DISCUSSION OF ANALYTICAL RESULTS FOR BSCP AND ROCK CREEK SAMPLES

The BSCP and Rock Creek data for metals and naturally occurring radionuclides were compared using the statistical methods described in Section 2.5 of this report. Tables 3-1 and 3-3 present summary statistics for the BSCP data; Tables 4-1 and 4-2 present the summary statistics for the Rock Creek data. Statistical comparisons of Rock Creek and BSCP data were performed for those analytes with greater than 20 percent detects. For analytes with less than 20 percent detects, data are summarized in Table 4-3. Results of various statistical tests comparing the BSCP and Rock Creek data are presented in Table 4-4. Data for each of the Group 1 analytes were compared with data from other studies; Figures 4-1 through 4-34 summarize these data comparisons. Box-and-whisker plots of BSCP, Rock Creek, and combined data are presented in Appendix D.

Statistical comparisons of the BSCP and Rock Creek data were also performed for all fallout radionuclides, following the methodology outlined in Section 2.5 of this report. Summary statistics for the Rock Creek data (Table 4-5), the BSCP data (Table 3-5), and the results of the comparison of the Rock Creek and BSCP data sets (Table 4-6), are provided in Sections 3 and 4 of this report. Data for each of the Group 2 analytes were compared with data from other studies; Figures 4-35 through 4-39 summarize these data comparisons.

As discussed in Section 2.5 of this report, statistics for those records qualified as non-detects (i.e., U qualified) were calculated by replacing the non-detect with one-half the value given in the result field of the RFEDS data for metal analytes. For metals, this value is assumed to be the IDL, whereas the reporting-limit field of RFEDS data may contain either the CRDL, the MDL, or the IDL value. Therefore, the mean concentrations (and other statistics) reported here may be different than those derived from calculations made following a different treatment for non-detects. Regardless of how non-detects are treated, however, the most important aspect is to **treat comparison data sets in the same manner.** In addition, any statistical comparisons using any data set with greater than 80-percent non-detects are problematic, at best; test results for data sets with 50- to 80-percent non-detects should be reviewed carefully.

4.1 GROUP 1 ANALYTES: METALS

The metals described here are naturally occurring in the crustal rocks of the earth. Various fractionation processes may result in a relative depletion or enrichment of a metal in a given rock type. Also, since the inception of the Industrial Revolution, anthropogenic redistribution of metals and their subsequent dissemination into the environment has radically altered the background levels of certain metals in surficial soils. Salomons and Forstner (1984) compiled data and calculated the ratio of anthropogenic:natural emissions of metals to calculate an index for the "mobilization factor" for metals, with higher values indicating relatively higher anthropogenic mobilities. The mobilization factors are: lead = 100, silver = 83, molybdenum = 45, antimony = 39, zinc = 23, cadmium = 19, copper = 13, tin = 8.3, selenium = 4.7, nickel = 3.5, arsenic = 3.3, vanadium = 3.2, and chromium = 1.6.

The trace metal content of soils and sediments is also strongly reflective of the effects of grain size, and this should be taken into account during comparisons of the analytical results for different samples (Salomons and Forstner, 1984). Data for BSCP Phase I samples include the results of grain-size analysis; however, particle-size distributions may not have been determined for samples from other sampling programs. The age of the soil and the residence time of different elements may also account for some of the compositional variability between different soils. Calcium, cadmium, magnesium, and sodium are readily leachable (75-380 year residence), whereas arsenic, copper, lead, mercury, nickel, selenium, and zinc have residence times on the order of 1,000 to 3,000 years in temperate soils (Salomons and Forstner, 1984).

To provide a better understanding of the meaning of the analytical results for the BSCP and Rock Creek studies, the following discussion briefly summarizes essential information for each metal. Data from several sources are included to help the reader put the results of the BSCP and Rock Creek studies into a larger, overall perspective. The caveat to this comparison with other studies is that all metals analyses performed for RFETS solid samples use the CLP method, stipulated by EPA. The CLP method utilizes nitric acid and hydrogen peroxide or a hydrochloric and nitric acid mixture for dissolution of samples. Non-RFETS studies, however, may use a hydrofluoric acid digestion, which is necessary to completely dissolve siliceous phases (mainly quartz and feldspars) in each soil sample. Alternatively, the recent Front Range study by the USGS (Severson and Tourtelot, 1994) used other analytical methods, including optical emission spectroscopy (OES), x-ray fluorescence (XRF), atomic absorption spectroscopy (AAS), ion-selective electrode, and gasometric procedures.

Mineralogical Associations of Metals

Although silica polymorphs are generally quite pure (Drees *et al.*, 1989), feldspars may contain a variety of impurities. Feldspars are anhydrous alumino-silicates that contain varying amounts of sodium, potassium, and calcium in several solid-solution series. Minor or trace elements include strontium, cesium, barium, lithium, magnesium, lead, iron, and chromium (Huang, 1989). These impurities are incorporated into the feldspar crystal lattice at the time of magmatic crystallization. Unlike the surface adsorption of potential contaminants added to the soil, these ions in the crystal lattice may not be released by a nitric and hydrochloric acid digestion, because the mineral may only be partially digested. The significance of an incomplete digestion of feldspars is that, for some metals, concentrations reported for RFETS soil samples may be less than those reported for other studies, such as the recent USGS study (Severson and Tourtelot, 1994). Aluminum in soils may also occur as amorphous to crystalline hydroxide/oxyhydroxide minerals, which should dissolve in a nitric and hydrochloric acid digestion, along with all adsorbed metals.

Acknowledging the analytical limitations, the comparison of RFETS data for background soils with those from other studies still provides useful information for many metals. For alkaline and alkaline-earth metals — as well as aluminum, silicon, beryllium, and chromium — results for RFETS samples may be less than those for samples digested by hydrofluoric acid. To better quantify the associations of various metals, correlation coefficients were calculated for all metals against silicon, aluminum, iron, and manganese (Table 4-8). Metals of concern that are not closely associated (i.e., r values less than 0.50) with aluminum or silicon include arsenic, cadmium, lead, manganese, mercury, and selenium. Metals of concern that show a high correlation (r values greater than 0.80) with aluminum or silicon include beryllium, chromium, copper, nickel, and zinc. Antimony, cesium, molybdenum, silver, and tin have too low a detection rate to provide meaningful correlation values. However, as noted by Salomons and Forstner (1984), both antimony and cobalt tend to be associated with manganese. In this analysis, antimony (4 percent detects), cobalt (100 percent detects), and molybdenum (9 percent detects) show the highest correlations of all the manganese correlations (r = 0.62, 0.65, and 0.62, respectively).

The strength of the metal correlation with aluminum and silicon gives an indication of whether the metal is likely to be completely or partially extracted from the soil sample. For those metals with a strong correlation (i.e., a high r-value) with aluminum or silicon, the mean and range of concentraitons reported in this study are likely to be less than those reported in the Front Range study conducted by the USGS. However, the results from the BSCP study are directly comparable with results from all RFETS studies that follow the same sampling and anlysis protocols. Due to the possibility of incomplete digestions following CLP methodology, results for some analytes may be less than those reported for other studies that use an HF acid digestion of the sample or XRF analysis. Aside from conducting a separate study to determine the exact extent of these differences, the correlation coefficients presented in Table 4-8 provide a rough estimate of which metals may be contained within the incompletely digested alumino-silicate phases.

Aluminum

Aluminum is the third-most abundant element in the earth's crust and comprises a significant proportion of many common rock-forming minerals (Krauskopf, 1979). Clays, micas, feldspars, and other alumino-silicate minerals contain the trivalent aluminum ion. Weathering reactions of rock-forming minerals can produce amorphous aluminum silicates, including allophane, halloysite, and others (Hsu, 1989). Gibbsite, $Al(OH)_3$, is the common hydroxide phase in soils, although oxyhydroxides (e.g., boehmite and diaspore) may also be present (Hsu, 1989).

Due to the incomplete digestion of alumino-silicate minerals, the ranges and means of aluminum concentrations for the BSCP and Rock Creek studies are less than those reported for the Front Range study (Severson and Tourtelot, 1994). The mean values for the BSCP (10,244 mg/kg) and Rock Creek (12,993 mg/kg) are approximately one-fifth the value of the mean for the Front Range study (56,600 mg/kg). The highest correlations with aluminum are shown for chromium (r = 0.96), potassium (r = 0.91), beryllium (r = 0.90), and vanadium (r = 0.90) (see Table 4-8).

Results of parametric ANOVA show that there are statistically significant differences between the means of the BSCP and Rock Creek data sets, with the Rock Creek mean (12,993 mg/kg) greater than the BSCP mean (10,244 mg/kg). However, the ranges of concentration for both of these data sets are within the range of concentrations reported from other published studies (see Severson and Tourtelot, 1994; Shacklette and Boerngen, 1984). Also, review of the graphics (scatterplots, box-and-whisker plots, probability plots) shows little real difference between the two RFETS data sets.

Because neither the Rock Creek nor the BSCP data lie outside of the range of published values for aluminum in background soils, and because the graphics show little difference between the sample populations, both data sets are considered representative of background levels for aluminum in surficial soils near RFETS, as analyzed using CLP methods.

Antimony

Antimony is present in low concentrations in the earth's crust (crustal average = 0.2 mg/kg), although it is much more abundant in shales and claystones (mean = 1.5 mg/kg) than in other rock types (Krauskopf, 1979). Typically, shales (especially marine shales) contain larger amounts of trace elements than other rock types (Severson and Tourtelot, 1994). The claystones that comprise the bedrock at RFETS may, therefore, be expected to contain some trace elements at concentrations significantly higher than the crustal mean. In addition, trace elements (such as antimony, arsenic, and cadmium) volatilized during smelting and other industrial activities, may be strongly enriched in surface soils due to atmospheric deposition (Salomons and Forstner, 1984).

Nevertheless, both the BSCP and Rock Creek data sets have high non-detect rates for antimony; the non-detect rates are 95 percent and 100 percent, respectively. The high non-detect rate for the BSCP samples occurred despite the use of trace-analyzer method with a lower detection limit than the standard atomic absorption (flame) method. EPA had requested the special method to achieve a lower IDL for antimony. Using this improved method, one BSCP sample contained concentrations of antimony greater than the IDL; no samples contained antimony in concentrations above the IDL for the Rock Creek site.

The lack of detected concentrations for antimony precludes the use of statistical comparisons between the BSCP and Rock Creek data sets. However, this lack corroborates the results of the Front Range study, which determined a low detection rate and much uncertainty for antimony analyses (Severson and Tourtelot, 1994). Additionally, the graphical illustrations of antimony data from the BSCP and Rock Creek studies (see Figure 4-2) largely illustrate the differing reporting limits for the two analytical methods used.

Both the Rock Creek and BSCP data sets are considered to represent background levels for antimony in surficial soils. Future comparisons using the BSCP data must take into account the low detection limits that resulted from using a more sensitive analytical method for the BSCP samples. Specifically, two data sets censored at vastly different detection limits should not be compared using the standard replacement of one-half the detection limits for non-detects.

Arsenic

Severson and Tourtelot (1994) found no trends in the distribution of arsenic in surficial soils along the Front Range. However, they did note that arsenic was expected "...to be associated with marine shales." The baseline range of arsenic in Front Range soils was reported as 0.6 mg/kg to 22 mg/kg (Severson and Tourtelot, 1994). Krauskopf (1979) notes that, on average, arsenic concentrations are enriched in shales (10 mg/kg), when compared to the crustal mean (1.8 mg/kg). Other studies report similar mean values for the enrichment of arsenic in shales and clays (14.5 mg/L — Woolson, 1983; 13 mg/kg — Salomons and Forstner, 1984).

Arsenic concentrations in soil samples from the BSCP and Rock Creek are not significantly different, according to the results from parametric ANOVA. The arsenic concentrations measured for the BSCP and Rock Creek are well within the published range of background values for the Front Range Corridor and other neighboring regions (Severson and Tourtelot, 1994; Shacklette and Boerngen, 1984; Dragun, 1988). Of the four metals tested for correlations with arsenic, none show good correlations; the ones most closely correlated are iron ($r = 0.50$) and manganese ($r = 0.48$) in the BSCP study (see Table 4-8). The lack of a good correlation with aluminum ($r = 0.33$) and silicon ($r = 0.13$) suggests that the results for arsenic should reflect the total amount of arsenic in the soils, and that the results of this study should be comparable with those of the Front Range study.

Because arsenic concentrations in both BSCP and Rock Creek soils are not statistically different, and because the results for both BSCP and Rock Creek lie within the range of values reported for other studies, both data sets are considered representative of background concentrations of arsenic in surficial soils near RFETS.

Barium

Barium is the fourteenth-most abundant element in the earth's crust and is an alkaline-earth metal with geochemical behavior similar to that of strontium, calcium, and magnesium. Barium is enriched in granites (mean = 700 mg/kg) and shales (mean = 600 mg/kg), relative to the mean crustal concentration (500 mg/kg) (Krauskopf, 1979). In surficial soils along the Front Range Corridor, baseline barium concentrations range from 450 to 1,800 mg/kg (Severson and Tourtelot, 1994).

The solubility of barite ($BaSO_4$, a fairly common mineral) probably controls the concentration of barium in many natural waters (Hem, 1992), including groundwater from the upper hydrostratigraphic unit (UHSU) at RFETS (EG&G, 1995d). Barium is less common than magnesium, calcium, or strontium in carbonate rocks; barium ions have a slightly larger radius than strontium ions and cannot as readily fit into the crystal lattice of calcite (Hem, 1992).

Results from the application of nonparametric ANOVA indicate that there are statistically significant differences in the mean values of the BSCP and Rock Creek data sets (means = 102 mg/kg and 195 mg/kg, respectively). However, the mean concentrations of barium in both the

BSCP and Rock Creek samples are well below the mean determined for soils along the Front Range Corridor (mean = 890 mg/kg) (Severson and Tourtelot, 1994). In addition, the maximum concentrations of barium in both the BSCP and Rock Creek data sets are less than the mean of the Front Range study (Severson and Tourtelot, 1994). Barium is most closely associated with iron (r = 0.65) and aluminum (r = 0.64) in the BSCP study (see Table 4-8). Barium does not appear closely associated with silicon (r = 0.37), so the disparity between the means and ranges for the RFETS studies and the Front Range study may be the result of local variation.

Both the Rock Creek and BSCP data sets are considered representative of background conditions for surficial soils. Other studies suggest that barium concentrations of as much as 2,300 mg/kg may occur naturally in marine clays (Salomons and Forstner, 1984); because of this, the chemistry of samples collected from surficial soils in areas of disrupted topography (i.e., slump blocks, landslides, etc.) where the claystone bedrock is exposed, may contain higher concentrations of barium than samples collected from undisturbed topography.

Beryllium

Beryllium is a trace metal with a mean crustal concentration of 3 mg/kg; shales also average 3 mg/kg of beryllium (Krauskopf, 1979). Locally, the baseline concentration of beryllium in surficial soils was reported to range from 0.5 to 2.8 mg/kg (Severson and Tourtelot, 1994).

Parametric ANOVA indicates that there is no statistically significant difference between the means of the BSCP (0.66 mg/kg) and Rock Creek (0.68 mg/kg) data sets. In addition, the means and ranges of concentrations from these two studies are less than the means and less than the upper limit of the range for other studies (Severson and Tourtelot, 1994; Dragun, 1988; Shacklette and Boerngen, 1984). However, beryllium concentrations are quite closely correlated with aluminum (r = 0.90) in the BSCP study (see Table 4-8). Compared with the Front Range study (Severson and Tourtelot, 1994), the mean values for beryllium in the BSCP study are relatively low and suggest that a resistant alumino-silicate phase containing beryllium — such as beryl weathered from pegmatitic granites — was not completely digested during preparation of BSCP samples.

However, the Rock Creek and BSCP data sets are statistically indistinguishable, and are considered representative of background conditions for beryllium in the surficial soils near RFETS, using CLP analytical methods.

Cadmium

Cadmium is a heavy metal that occurs in trace amounts in crustal materials (mean = 0.15 mg/kg). Of all rock types, shales and claystones contain, on average, the highest concentrations of cadmium (mean = 0.3 mg/kg) (Krauskopf, 1979). In surficial soils, cadmium is reported to range from about 0.2 mg/kg to almost 7.0 mg/kg (Dragun, 1988). Salomons and Forstner (1984) report a mean value of 0.62 mg/kg for cadmium in soils. Cadmium is another metal that has undergone anthropogenic redistribution, resulting in significant enrichment of cadmium in surficial soils. Cadmium is not closely correlated with either silicon (r = 0.19) or aluminum (r = 0.19) in the BSCP study (see Table 4-8).

The results of nonparametric ANOVA show that there is no significant difference between the BSCP (mean = 0.714 mg/kg) and Rock Creek (mean = 0.732 mg/kg) data sets for cadmium. In addition, the results of both studies lie within the range reported by Dragun (1988). Both data sets are considered representative of background conditions for cadmium in surficial soils.

Calcium

Calcium is the fifth-most abundant element in the earth's crust (mean = 41,000 mg/kg), is an essential nutrient for plants and animals, and exhibits a wide range of concentrations in various geologic materials (Krauskopf, 1979). In the soils of arid and semi-arid regions, calcium is commonly found accumulating below the surface horizon as calcium carbonate. This caliche or calcrete layer tends to be more massive in older soils, all other factors being equal (Birkeland, 1984; Gile *et al.*, 1965; Gile and Grossman, 1966). However, the upper 5 cm of soil would more likely be a zone of calcium leaching rather than calcium accumulation. In surficial soils of the Front Range, the mean, minimum, and maximum concentrations are 8,300, 1,500, and 45,800 mg/kg, respectively (Severson and Tourtelot, 1994).

The mean concentration of calcium in the BSCP samples (2,969 mg/kg) is significantly less than that in the Rock Creek samples (5,068 mg/kg), according to results of parametric ANOVA. Calcium concentrations do show a relatively good correlation with aluminum (r = 0.79) in the BSCP study (see Table 4-8), and means are roughly one-half that reported in the Front Range study (Severson and Tourtelot, 1994), suggesting that some calcium may be bound up in the crystal lattice of an incompletely digested alumino-silicate mineral. However, the calcium concentrations reported for both data sets are within the low end of the range of published data for baseline soils (see Severson and Tourtelot, 1994; Shacklette and Boerngen, 1984).

Both the Rock Creek and BSCP data sets are considered to represent background levels for calcium in surficial soils near RFETS.

Cesium

Cesium is a trace metal, with a mean crustal concentration of 3 mg/kg; shales are relatively enriched in cesium, with a mean value of 7 mg/kg (Krauskopf, 1979).

All BSCP samples were analyzed and reported to contain concentrations of cesium less than the IDL of 12.1 to 14 mg/kg (i.e., 100-percent non-detects), whereas nine of the Rock Creek samples were considered non-detects, based on an instrument detection limit of 110 to 150 mg/kg. The other nine samples from Rock Creek were classified as detects, based on an IDL of approximately 0.45 mg/kg. The widely disparate IDLs make a meaningful comparison difficult.

There is no evidence to suggest that either the BSCP or Rock Creek areas are not representative of background for cesium in surficial soils.

Chromium

Chromium is a transition metal that averages 100 mg/kg in shales and in the overall crust; basalts contain an average of 200 mg/kg (Krauskopf, 1979). Chromium concentrations in background soils along the Front Range Corridor range from 7.2 to 130 mg/kg (Severson and Tourtelot, 1994). Severson and Tourtelot (1994) provide a concentration isopleth map for chromium in surficial soils along the Front Range Corridor. The highest concentrations (64.0 mg/kg) contoured in the map area are in the vicinity of RFETS, and may be related to local lithology. In addition, the widespread industrial use of chromium has contributed significant amounts to surficial soils (Hem, 1992).

Although the mean values for chromium were determined to be significantly different between the BSCP (11.3 mg/kg) and Rock Creek (15.0 mg/kg) data sets (based on parametric ANOVA), both means are less than the mean of the Front Range study (31 mg/kg) (Severson and Tourtelot, 1994), and no values exceed the maximum value reported for the Front Range study. Chromium concentrations in the BSCP study show a good correlation with both aluminum ($r = 0.96$) and iron ($r = 0.83$). The relatively low mean and good correlation with aluminum reported for chromium in the BSCP study suggest that some chromium may be bound up in the crystal lattice of an incompletely digested alumino-silicate mineral.

However, the range of concentrations for the BSCP and Rock Creek data are on the low end of the range reported for baseline chromium in soils of the Front Range and no values exceed the mean of the Front Range study. Both the BSCP and Rock Creek data sets are considered to represent background concentrations of chromium in surficial soils analyzed using CLP methods.

Cobalt

Cobalt is a transition metal that averages 22 mg/kg in the overall crust and 20 mg/kg in shales (Krauskopf, 1979), although much higher mean concentrations are reported for deep-sea clays (74 mg/kg) (Salomons and Forstner, 1984). A range of 0.3 to 47 mg/kg was reported for baseline soils along the Front Range Corridor (Severson and Tourtelot, 1994).

Parametric ANOVA found no significant difference in the mean concentrations for samples from the BSCP and Rock Creek areas. The mean values for the BSCP and Rock Creek data (7.3 mg/kg and 7.8 mg/kg, respectively) are higher than the mean for cobalt in surficial soils, as reported by Severson and Tourtelot (1994) (mean = 4.0 mg/kg); however, the BSCP and Rock Creek data are within the range of concentrations reported for the Front Range study (Severson and Tourtelot, 1994) and other published data for background soils (Shacklette and Boerngen, 1984; Dragun, 1988). Cobalt shows a correlation with manganese ($r = 0.65$) and aluminum ($r = 0.66$) in the BSCP study (see Table 4-8).

The means and ranges of values for the BSCP and Rock Creek studies lie well within the range of concentrations reported for the Front Range study. Both the BSCP and Rock Creek data are representative of background concentrations of cobalt in surficial soils.

Copper

Overall crustal rocks and shales both contain, on average, 50 mg/kg copper. Baseline surficial soils along the Front Range Corridor contain copper concentrations ranging from 2.3 to 74 mg/kg, with a mean of 13 mg/kg (Severson and Tourtelot, 1994).

Results of nonparametric ANOVA indicate that the copper concentrations in the BSCP and Rock Creek data sets are not significantly different (both means = 12.9 mg/kg). Copper shows a good correlation with aluminum ($r = 0.85$) and iron ($r = 0.80$) in the BSCP study (see Table 4-8). The ranges of copper concentrations in BSCP and Rock Creek soils are on the low end of the range reported for copper in baseline soils of the Front Range; the means from all three studies are virtually the same.

The mean concentrations for the BSCP and Rock Creek data sets are statistically indistinguishable, and both are less than the mean for the Front Range study (Severson and Tourtelot, 1994). The BSCP and Rock Creek data do not exceed the upper range reported in the Front Range study, and both data sets are considered to be representative of background levels of copper in surficial soils near RFETS.

Iron

Iron is the fourth-most abundant element in the earth's crust, and is ubiquitous in many common rock-forming minerals. The average iron content of shales (47,000 mg/kg) is slightly less than the crustal average of 54,000 mg/kg (Krauskopf, 1979). Iron oxides "...are the most abundant of the metallic oxides in soils. They are present in most soils of the different climatic regions as very fine particles in one or more of their mineral forms and at variable levels of concentration" (Schwertmann and Taylor, 1989).

Using parametric ANOVA, the mean for the Rock Creek data (15,380 mg/kg) was determined to be significantly higher than the mean for the BSCP data (12,550 mg/kg). Iron concentrations show a good correlation with aluminum ($r = 0.79$), indicating association with aluminum hydroxides/oxyhydroxides or alumino-silicate minerals. However, the ranges of concentrations for the BSCP and Rock Creek data sets are within published values for background soils, and the means are less than the mean reported for surficial soils along the Front Range (mean = 21,600 mg/kg; Severson and Tourtelot, 1994).

The BSCP and Rock Creek data lie within the range of concentrations reported for other studies, and are considered representative of background conditions for iron in surficial soils near RFETS.

Lead

Lead is a heavy metal that occurs in minor amounts in crustal rocks (mean = 12.5 mg/kg); lead is slightly enriched in shales (mean = 20 mg/kg) (Krauskopf, 1979). Despite the relatively low concentrations in crustal rocks, the element has become widely dispersed through smelting operations and the use of leaded gasoline. This anthropogenic redistribution of lead has resulted in substantial enrichments of the metal in surficial soils, world-wide. Salomons and Forstner (1984) note a mobility factor of 100 (the highest of all metals) for lead, and that atmospheric deposition accounts for 60 percent of lead in lake sediments. Along the Front Range Corridor, baseline surficial soils contain from 9.7 to 130 mg/kg of lead (Severson and Tourtelot, 1994).

Surficial soils collected for the BSCP and Rock Creek studies contain an average of 33.6 and 37.5 mg/kg lead, respectively. Results from parametric ANOVA indicate that there is no significant difference between these two data sets. Although the mean for the Rock Creek data is slightly higher than the mean for surficial soils along the Front Range Corridor (35.0 mg/kg), the concentrations for the BSCP and Rock Creek data sets are well within the range of published values for background soils of the Front Range and other neighboring regions. Lead concentrations in the BSCP study show a weak correlation with iron (r = 0.44) and essentially no correlation with aluminum or silicon (see Table 4-8).

The similarity of the values for the BSCP, Rock Creek, and Front Range studies, as well as the lack of correlation of BSCP lead values with aluminum or silicon, indicates that the results are comparable. Both the BSCP and Rock Creek data sets are considered representative of baseline levels for lead in surficial soils near RFETS.

Lithium

Lithium is an alkali metal, with a mean crustal concentration of 20 mg/kg; shales are enriched with respect to lithium (mean = 60 mg/kg) (Krauskopf, 1979). Baseline surficial soils along the Front Range Corridor contain 7.7 to 52 mg/kg lithium (Severson and Tourtelot, 1994).

Parametric ANOVA indicates that the BSCP and Rock Creek means are significantly different (means = 7.7 and 11.0 mg/kg, respectively). Both these means, however, are approximately one-half the mean value determined for baseline soils of the Front Range Corridor (20.0 mg/kg; Severson and Tourtelot, 1994). The ranges for the BSCP and Rock Creek data also lie within the low end of the range of concentrations reported for Front Range soils. These results, in combination with the good correlation of lithium with aluminum (r = 0.86) in the BSCP study, suggest that some lithium is bound up in the crystal lattice of an incompletely digested alumino-silicate mineral. Lithium also shows a reasonably good correlation with iron (r = 0.80).

Although the mean concentrations of the BSCP and Rock Creek data sets are statistically different, data from both studies are well within the background range of lithium reported for surficial soils, and significantly less than the mean concentration of lithium in shales. Both the BSCP and Rock Creek data sets are representative of background levels of lithium in surficial soils.

Magnesium

Magnesium is the seventh-most abundant element (second-most abundant alkaline-earth metal) in the earth's crust (Krauskopf, 1979). The geochemical behavior of magnesium is similar to that of calcium, both occur in common rock-forming minerals and both are essential nutrients for animals and plants. Shales are depleted in magnesium (mean = 14,000 mg/kg) relative to the mean crustal concentration (23,000 mg/kg) (Krauskopf, 1979). In baseline surficial soils of the Front Range Corridor, magnesium concentrations range from 900 to 18,600 mg/kg (Severson and Tourtelot, 1994).

The mean concentration of magnesium in the Rock Creek samples (2,850 mg/kg) was significantly higher than that in BSCP samples (1,910 mg/kg), according to testing by parametric ANOVA. However, the ranges of concentrations for the Rock Creek and BSCP data sets lie within the range of concentrations for baseline surficial soils along the Front Range Corridor. Magnesium shows a good correlation with aluminum (r = 0.89) in the BSCP study (see Table 4-8). The relatively low values for magnesium in the BSCP and Rock Creek data sets suggest that some of the element may be bound up in the crystal lattice of an incompletely dissolved alumino-silicate mineral (such as feldspar, pyroxene, biotite, etc.).

Although the mean concentrations of magnesium are significantly different in the BSCP and Rock Creek data sets, both are less than the mean determined for soils along the Front Range (4,100 mg/kg), and both are considered representative of the background population for magnesium in surficial soils analyzed using CLP methods.

Manganese

Manganese is the twelfth-most abundant element in the earth's crust (mean = 1,000 mg/kg) (Krauskopf, 1979), and is relatively depleted in shales (mean = 850 mg/kg), although enriched in basaltic rocks (mean = 1,700 mg/kg). In soils, manganese oxide and hydroxide minerals are important constituents for two reasons. "First, Mn is an essential element for the nutrition of plants and animals... Secondly, the Mn oxides and hydroxides have a high sorption capacity for heavy-metal ions..." (McKenzie, 1989).

The geochemical behavior of manganese is somewhat similar to that of iron; both have multiple oxidation states. Manganese may substitute for iron, magnesium, or calcium in alumino-silicate minerals (Hem, 1992). On rock surfaces in arid regions, impure manganese oxides can form a ubiquitous coating known as "desert varnish." Both crystalline and amorphous forms of manganese oxides and hydroxides are found in soils as "...coatings on soil particles, as deposits in cracks and veins, and mixed with Fe oxides and other soil constituents in nodules" (McKenzie, 1989).

Baseline surficial soils along the Front Range Corridor contain from 90 to 850 mg/kg of manganese (Severson and Tourtelot, 1994). Other studies of soils in the western U.S. show a much greater range of manganese concentrations (Shacklette and Boerngen, 1984). The highest concentrations noted in the Front Range study define a plume that appears to emanate from the vicinity of Clear Creek Canyon, and trends northeastward towards RFETS (Severson and Tourtelot, 1994).

Results from parametric ANOVA indicate that the Rock Creek and BSCP means (444 and 237 mg/kg, respectively) are significantly different. The mean for Rock Creek is heavily influenced by the presence of one extreme outlier (2,220 mg/kg). However, understanding the geochemical behavior and occurrence of manganese in soils, outliers can be explained by the presence of mafic rock fragments, manganese nodules, or manganese coatings that are heterogeneously dispersed but highly concentrated in soils. If, due to chance alone, such particles were included in a soil sample, the measured manganese concentrations may be unusually high.

Both the BSCP and Rock Creek data sets are considered to represent background conditions for manganese in surficial soils. The sole, extreme outlier of 2,220 mg/kg in the Rock Creek data set may be excluded from the calculation of summary statistics for the Rock Creek or combined Rock Creek/BSCP data sets; however, it is important to note that the geochemical behavior and distribution of manganese make it one of the more erratic (in terms of concentration) metals in the environment. Manganese is not closely correlated with silicon ($r = 0.05$) or aluminum ($r = 0.31$) in the BSCP data set; it shows some correlation with iron ($r = 0.55$) (see Table 4-8). The lack of correlation with aluminum and silicon suggests that all manganese in the samples was dissolved by the CLP digestion.

Other than a single datum, all the values for both the BSCP and Rock Creek data sets lie within the range for baseline surficial soils along the Front Range Corridor. Both data sets are considered representative of background concentrations of manganese in surficial soils near RFETS.

Mercury

Mercury occurs in trace amounts in crustal rocks (mean = 0.02 mg/kg), but is highly enriched in shales (mean = 0.3 mg/kg) (Krauskopf, 1979). Along the Front Range Corridor, baseline surficial soils contain from 0.01 to 0.099 mg/kg, with a mean of 0.024 mg/kg (Severson and Tourtelot, 1994). Mercury is one of the most volatile metals and has undergone significant anthropogenic enrichment and redistribution in the environment (Salomons and Forstner, 1984).

Because of the high rate of non-detects in the BSCP and Rock Creek data sets for mercury (65 and 96 percent, respectively), statistical comparisons could not be made. The Rock Creek data set has no detected values greater than the maximum value reported for Front Range soils; however, five of the BSCP results slightly exceed this maximum reported value. These exceedances may be attributed to errors involving censored data or to differences in the analytical techniques used on the BSCP and Front Range soil samples. The BSCP data for mercury show no correlation with silicon, aluminum, iron, or manganese (see Table 4-8).

Both the BSCP and Rock Creek data sets are considered representative of background concentrations of mercury in surficial soils near RFETS.

Molybdenum

Molybdenum is found in trace amounts in crustal rocks (mean = 1.5 mg/kg), and is slightly enriched in shales (mean = 2.0 mg/kg) (Krauskopf, 1979). However, deep-sea clays contain as much as 27 mg/kg (Salomons and Forstner, 1984).

The high rate of non-detects precluded the statistical comparison of the BSCP and Rock Creek data for molybdenum (91 and 96 percent non-detects, respectively). For baseline surficial soils along the Front Range, only about 7 percent of the samples were reported to contain detectable concentrations of molybdenum (Severson and Tourtelot, 1994). However, the ranges of detected concentrations for the BSCP and Rock Creek data sets are less than the range reported for soils in the western United States (Shacklette and Boerngen, 1984).

With no evidence to the contrary, both the BSCP and Rock Creek data sets are considered representative of background levels of molybdenum in surficial soils.

Nickel

Nickel is a trace metal in the earth's crust (mean = 75 mg/kg), and is slightly enriched in shales (mean = 80 mg/kg) and basalts (mean = 150 mg/kg) (Krauskopf, 1979). As much as 250 mg/kg nickel is reported for deep-sea clays (Salomons and Forstner, 1984). In baseline surficial soils of the Front Range, the mean, minimum, and maximum concentrations are 6.8, 0.36, and 130 mg/kg, respectively (Severson and Tourtelot, 1994). Nickel was also found to be positively correlated with marine sediments along the Front Range (Severson and Tourtelot, 1994).

The geochemical behavior of nickel is similar to that of cobalt; both elements substitute for iron in rock-forming minerals, and both tend to be coprecipitated with iron and manganese oxides (Hem, 1992). The widespread cultural use of nickel has contributed significant amounts of the metal to the environment (Hem, 1992).

Results from parametric ANOVA indicate that the mean concentrations of the BSCP and Rock Creek data sets are significantly different (9.6 and 12.6 mg/kg, respectively). However, the ranges of concentrations for these two data sets lie within the low end of the range for baseline soils of the Front Range Corridor (Severson and Tourtelot, 1994). Nickel data in the BSCP study show reasonably good correlations with aluminum ($r = 0.88$), iron ($r = 0.76$), and silicon ($r = 0.69$).

Because the results of numerous studies show a much higher range of concentrations for nickel, and because the ranges of both the BSCP and Rock Creek data sets lie within these reported ranges, the two data sets are considered subpopulations of overall background population for nickel in surficial soils analyzed using CLP methods.

Potassium

Potassium is the seventh-most abundant element in the earth's crust (mean = 21,000 mg/kg), and is slightly enriched in shales (mean = 25,000 mg/kg) (Krauskopf, 1979). This alkali metal is an essential nutrient for both animals and plants (Hem, 1992). In baseline surficial soils of the Front Range, the mean, minimum, and maximum concentrations are 12,700, 5,800, and 27,800 mg/kg, respectively (Severson and Tourtelot, 1994).

Results of parametric ANOVA indicate that mean concentrations in the BSCP and Rock Creek data sets are significantly different (means = 2,061 and 2,977 mg/kg, respectively). However, both means are less than the mean reported for baseline surficial soils along the Front Range Corridor, and the ranges of the BSCP and Rock Creek data sets lie on the low end of ranges reported for the Front Range and other studies (Severson and Tourtelot, 1994; Shacklette and Boerngen, 1984). Potassium shows a strong correlation with aluminum (r = 0.91) in the BSCP study (see Table 4-8), suggesting that the relatively low values reported for RFETS analyses may be the result of incomplete dissolution of potassium feldspar during the CLP digestion.

Both the BSCP and Rock Creek data sets are considered to represent background concentrations of potassium in soils near RFETS, as measured using CLP analytical methods.

Selenium

Selenium is distributed as a trace element in the earth's crust (mean = 0.05 mg/kg), but it is greatly enriched in shales (mean = 0.6 mg/kg) (Krauskopf, 1979). Soils along the Front Range average 0.23 mg/kg selenium, and range from 0.1 to 1.6 mg/kg (Severson and Tourtelot, 1994).

The geochemical behavior of selenium is somewhat similar to that of sulfur; both occur as oxyanions in oxidizing solutions (Hem, 1992). Selenium is also associated with iron and uranium; coprecipitating or adsorbed onto ferric oxyhydroxides, and deposited along with uranium in sandstones (Hem, 1992).

Results from nonparametric ANOVA indicate that selenium concentrations are significantly higher in the BSCP samples than in the Rock Creek samples (means = 0.63 and 0.43 mg/kg, respectively). The non-detect rates for these two data sets (BSCP = 39-percent non-detects, Rock Creek = 22-percent non-detects) are not excessive, and actually are much lower than the non-detect rate (76 percent) reported by Severson and Tourtelot (1994). Both the BSCP and Rock Creek data lie within the range reported for baseline surficial soils along the Front Range Corridor. Selenium values in the BSCP data set show no correlation with aluminum, silicon, iron, or manganese (see Table 4-8). Modeling results from another RFETS study (EG&G, 1995d) suggested that selenium was present as native selenium in the subsurface environment. If this were also the case for surficial soils, this could explain the lack of correlation of selenium with other metals.

Although the BSCP samples contain significantly higher concentrations of selenium than the Rock Creek samples, both data sets lie within the range reported for other studies and both are considered representative of background selenium levels in surficial soils near RFETS.

Silicon

Silicon is second in abundance only to oxygen in the earth's crust (mean = 280,200 mg/kg); it is slightly depleted in shales (mean = 238,000 mg/kg) (Krauskopf, 1979). In baseline surficial soils along the Colorado Front Range, silicon averages 316,000 mg/kg, and ranges from 248,000 to 402,000 mg/kg (Severson and Tourtelot, 1994).

The most common silicon mineral is SiO_2, in all its polymorphs, from quartz to chalcedony, cristobalite, and opal. Feldspars and clays comprise the most common alumino-silicate minerals. In natural waters, the concentration of dissolved silica appears to be controlled by the solubility of amorphous silica (Hem, 1992). Because quartz is not a highly substituted mineral (Drees *et al.*, 1989), the correlations between silicon and various metals are not as good as those between aluminum and various metals (see Table 4-8).

The granitic clasts contained in the soil parent material (Rocky Flats Alluvium) contain abundant quartz crystals, which would be strongly resistant to all but a hydrofluoric acid digestion. The analysis following CLP digestion would underestimate the concentration of silicon more than any other element analyzed for this study because quartz is one of the most abundant and persistent minerals in soils. Quartz "...often constitutes the major portion of all sand and silt fractions and in a major component of the coarse clay fraction of many soils." (Drees *et al.*, 1989).

Results from nonparametric ANOVA indicate that the BSCP mean for silicon (1,383 mg/kg) is significantly greater than the Rock Creek mean (781 mg/kg). The mean value reported for the Front Range study is significantly higher due to different methods of sample preparation and analysis. Because quartz cannot be completely dissolved by a CLP digestion, silicon concentrations reported for solid samples from RFETS are not directly comparable with results from other studies that did not use CLP analytical methods for silicon.

Although the mean concentration of silicon in the BSCP data set is nearly twice as high as the mean concentration in the Rock Creek data set, both data sets are considered to be subsets of the same background population, analyzed using CLP methods.

Silver

Silver is a precious trace metal that averages only 0.07 mg/kg in crustal rocks; shales show a slight enrichment, with 0.1 mg/kg silver (Krauskopf, 1979). Despite wide-spread industrial use of the metal, silver concentrations in surficial soils are generally below the limit of detection.

There were no detected values for silver in either the BSCP or Rock Creek data sets. This detection rate generally agrees with that of the Front Range study (approximately 3 percent detectable concentrations) (Severson and Tourtelot, 1994).

Statistical comparisons could not be performed on the 100-percent non-detect data. Based on the concentration of silver in geologic materials (Krauskopf, 1979), one may expect concentrations significantly less than the IDLs of 1 to 3 mg/kg reported for RFETS data.

Sodium

Sodium is the most abundant alkali metal and the sixth-most abundant element in the earth's crust (mean = 24,000 mg/kg); shales are depleted relative to other rock types (shale mean = 9,000 mg/kg) (Krauskopf, 1979). In baseline surficial soils along the Colorado Front Range, the mean, minimum, and maximum concentrations of sodium are 4,600, 1,800, and 13,300 mg/kg, respectively (Severson and Tourtelot, 1994).

Sodium salts are highly soluble, and leaching will remove these salts from the upper portions of weathered soils. Albitic feldspars ($NaAlSi_3O_8$) contained in granitic clasts within the Rocky Flats Alluvium probably contribute much of the sodium measured in surficial soils at RFETS. The age of the soils developed on the Rocky Flats Alluvium (approximately 2 million years) is generally greater than other soils along the Front Range Corridor. Because of the high solubility of sodium, and the greater affinity of divalent cations for any ion-exchange sites, any sodium released by weathering is probably rather quickly flushed from the upper 5 cm of soil sampled for RFETS studies.

Results from parametric ANOVA indicate that Rock Creek soil samples contain significantly more sodium than do BSCP samples (means = 115 and 62 mg/kg, respectively), although both sets of samples contain far less sodium than that reported by the Front Range study (Severson and Tourtelot, 1994). Sodium concentrations in BSCP samples are not closely correlated with silicon ($r = 0.32$), aluminum ($r = 0.46$), iron ($r = 0.38$), or manganese ($r = 0.11$) (see Table 4-8). Both the age of the Rocky Flats soils and the presence of sodium in feldspars may contribute to the low range of values reported for sodium in the BSCP (range = 43.8 to 105 mg/kg) and Rock Creek (range = 56.9 to 115 mg/kg) data sets.

Although the mean concentration of sodium in the Rock Creek data set is nearly twice as high as the mean concentration in the BSCP data set, both data sets are considered to be subsets of the same background population, as determined by CLP analytical methods.

Strontium

Strontium is the fourth-most abundant alkali-earth metal and the fifteenth-most abundant element in the earth's crust (mean = 375 mg/kg); shales are slightly enriched with respect to strontium (mean = 400 mg/kg) (Krauskopf, 1979). In baseline surficial soils along the Colorado Front Range, the mean, minimum, and maximum concentrations are 270, 85, and 860 mg/kg, respectively (Severson and Tourtelot, 1994).

The geochemical behavior of strontium is similar to that of magnesium, calcium, and barium; all form sulfate, carbonate, and alumino-silicate minerals. Both the carbonate (strontianite) and sulfate (celestite) of strontium are common in sediments, and strontianite is considerably less soluble than calcite under the same conditions (Hem, 1992). Feldspars, a family of alumino-silicate minerals, contain varying amounts of sodium, potassium, and calcium, as well as smaller amounts of barium, cesium, copper, lead, magnesium, and strontium (Huang, 1989). Huang (1989) notes that "...feldspars are found in virtually all sediments and soils in quantities that vary with the nature of the parent material and the stage of weathering."

Results from parametric ANOVA indicate that the mean concentrations of strontium in the BSCP (28.4 mg/kg) and Rock Creek (35.3 mg/kg) data sets are not significantly different. The means and ranges of both these data sets are much less than those reported for baseline soils in the Front Range study. Strontium correlates with aluminum ($r = 0.80$) and silicon ($r = 0.70$) in the BSCP data set (see Table 4-8). Both of these observations indicate that most of the strontium is probably bound up in the crystal lattice of incompletely digested alumino-silicate minerals, such as feldspars.

The BSCP and Rock Creek data sets are considered representative of background concentrations for strontium in surficial soils near RFETS, as measured using CLP analytical methods.

Thallium

Thallium is a trace element occurring in low concentrations in crustal rocks (mean = 0.8 mg/kg), with a slight enrichment in shales (mean = 1.0 mg/kg) and granites (mean = 1.2 mg/kg) (Krauskopf, 1979).

The high rate of non-detects for thallium (100-percent non-detects for BSCP, 65-percent non-detects for Rock Creek), and the different detection limits used (0.8 mg/kg for BSCP, 0.3 mg/kg for Rock Creek) make any statistical comparison of these data sets dubious.

Professional judgment, rather than statistical analysis, should probably be used when evaluating data for thallium in surficial soils. Assessment of the detection limits and analytical methods used should be taken into account during the evaluation.

Barring evidence to the contrary, both the BSCP and Rock Creek data sets probably represent baseline levels of thallium in surficial soils near RFETS.

Tin

Tin averages 2.5 mg/kg in crustal rocks, and is slightly enriched in shales (6.0 mg/kg) (Krauskopf, 1979). In surficial soils along the Colorado Front Range, tin averages 1.3 mg/kg and ranges from 0.1 to 34 mg/kg (Severson and Tourtelot, 1994).

Because of the vastly different detection limits reported for the BSCP (about 4.8 mg/kg or less, 9-percent detection rate) and Rock Creek (approximately 28 mg/kg, 61-percent detection rate) data for tin, statistical comparisons are neither meaningful nor helpful in assessing the data.

The Rock Creek data for tin are censored at a high detection limit, which limits the utility of the data set for comparison with other data sets that are censored at lower detection limits. The BSCP data set could be used for comparisons of tin concentrations that are censored at a lower concentration. A careful review of the reported detection limits for all data sets should be completed prior to any comparisons of tin data.

Vanadium

Vanadium is a transition metal that averages 110 mg/kg in crustal rocks, and is slightly enriched in shales (mean = 130 mg/kg) and basalts (mean = 250 mg/kg) (Krauskopf, 1979). In baseline surficial soils along the Colorado Front Range, the mean, minimum, and maximum concentrations of vanadium are 68, 18, and 260 mg/kg, respectively (Severson and Tourtelot, 1994).

The geochemical behavior of vanadium is complicated, due to the occurrence of three valence states (V^{+3}, V^{+4}, and V^{+5}), although the V^{+5} state is probably dominant in oxygenated aqueous systems (Hem, 1992). Vanadium — like arsenic, selenium, antimony, and uranium — tends to form oxyanions in solution, with a fairly high solubility possible in an oxidizing alkaline environment (such as that commonly found at RFETS). Vanadium may be associated with iron and uranium, and is present in coals and other fossil fuels (Hem, 1992).

Results from parametric ANOVA indicate that the mean concentrations of vanadium in BSCP (27.8 mg/kg) and Rock Creek (31.6 mg/kg) soil samples are not significantly different. The mean and maximum concentrations for these two studies are less than the mean and maximum reported for Front Range baseline soils. The BSCP data for vanadium show a strong correlation with aluminum ($r = 0.90$) and a lesser correlation with iron ($r = 0.77$) (see Table 4-8). These correlations, combined with the relatively low means for the BSCP and Rock Creek studies, suggest that some vanadium is bound up in the crystal lattice of incompletely digested alumino-silicate minerals. The means for the RFETS studies are approximately one-half the mean reported for the Front Range study, and the maximum values for the RFETS studies (45.8 and 45.6 mg/kg) are considerably less than the 260 mg/kg maximum reported in the Front Range study (Severson and Tourtelot, 1994).

Both the BSCP and Rock Creek data sets are considered to represent background levels of vanadium in surficial soils near RFETS, and are directly comparable to data from other RFETS studies utilizing CLP analytical methods.

Zinc

Zinc averages about 70 mg/kg in crustal rocks, and is slightly enriched in shales (mean = 90 mg/kg) and basalts (mean = 100 mg/kg) (Krauskopf, 1979). In baseline surficial soils of the

Front Range, the mean, minimum, and maximum concentrations of zinc are 63, 21, and 190 mg/kg, respectively (Severson and Tourtelot, 1994).

Zinc is widely used in industry, and, as a result, has been significantly remobilized and redistributed in the environment, world-wide (mobilization factor = 34). Zinc is likely to be related to other metal oxides or mineral surfaces through adsorption or coprecipitation (Hem, 1992).

Testing by parametric ANOVA indicates that there is no significant difference between the BSCP and Rock Creek data sets. The mean concentrations of zinc in the BSCP and Rock Creek samples are 49.6 and 55.8 mg/kg, respectively. For the BSCP data, zinc correlates well with aluminum ($r = 0.86$) and iron ($r = 0.75$) (see Table 4-8). However, the geochemical behavior of zinc suggests that it is more likely to be coprecipitated with or adsorbed onto the surfaces of aluminum and iron oxides/hydroxides rather than be incorporated into a feldspar crystal lattice.

The mean values for the BSCP and Rock Creek data are slightly less than the mean reported for Front Range soils, and the ranges of concentrations lie within the range of the Front Range study. Both the BSCP and Rock Creek data sets are considered to be representative of background levels of zinc in surficial soils near RFETS.

4.2 GROUP 1 ANALYTES: NATURALLY OCCURRING RADIONUCLIDES

The radionuclides described here are naturally occurring in the crustal rocks of the earth. Various fractionation and decay processes may result in a relative depletion or enrichment of a radionuclide in a given rock type. Also, since the inception of the Industrial Revolution and, later, the Atomic Age, there has been anthropogenic redistribution of radionuclides in the environment.

In RFEDS data, the standardized results are given in activity units of pCi/g for solid samples. Basically, one curie (Ci) is defined as 3.7×10^{10} disintegration per second, which is the approximate activity of one gram of radium in equilibrium with its daughter products (Hem, 1992). Also reported in the RFEDS data is the 95-percent upper confidence limit (UCL) value as the variable, "ERROR". This error term reflects the propagation of analytical errors associated with the reported measurement value, and provides an estimation of the uncertainty with each numeric result that is reported.

To provide a better understanding of the meaning of the results for the BSCP and Rock Creek studies, the following discussion briefly summarizes essential information for each radionuclide. Data from several sources are included to help the reader put the results of the BSCP (see Table 3-1) and Rock Creek (see Table 4-1) studies into a larger, overall perspective. The Front Range study (Severson and Tourtelot, 1994) did not evaluate radionuclides in surface soils.

Box-and-whisker plots and the results of statistical comparisons for the BSCP, Rock Creek, and combined data sets for naturally occurring radionuclides are presented in Appendix D and Table 4-4, respectively.

Radium-226

Radium-226 is one of the four naturally occurring isotopes of radium, and is present in soils due to the radioactive decay of uranium-238. The half-life of radium-226 is about 1,622 years (Friedlander *et al.*, 1964). Radium is an alkaline-earth metal, with a geochemical behavior somewhat similar to that of barium (Hem, 1992).

Published data indicate that the mean activity of radium-226 is about 1.3 pCi/g in igneous rocks, 1.08 pCi/g in shales, and about 0.73 pCi/g in sandstones and two soil samples (Eisenbud, 1987). Myrick *et al.* (1983) compiled a summary of radium-226 data for soils of the world, the United States, and Colorado. Myrick *et al.* (1983) determined that the nationwide background level of radium-226 in surficial soils was 1.1 pCi/g; in surficial soils of Colorado, they reported a range of 0.48 to 3.4 pCi/g, with a mean of about 1.3 pCi/g.

The mean activities of radium-226 in soil samples from the BSCP (mean = 0.519 pCi/g) and Rock Creek (mean = 0.945 pCi/g) studies show significant differences, according to the results from parametric ANOVA. Although uranium was used in industrial activities at RFETS, the EDA indicated that the Rock Creek area was unaffected by uranium-238 and its daughter product, radium-226.

Both the BSCP and Rock Creek data fall within or below the range of values reported for Colorado (Myrick *et al.*, 1983). The consistency with published values for the background range of activities for radium-226 indicates that both the BSCP and Rock Creek data sets are representative of background levels for radium-226 in surficial soils near RFETS.

Radium-228

Radium-228 occurs naturally in soils due to the radioactive decay of thorium-232. The half-life of radium-228 is about 6.7 years. It decays to actinium-238 (half-life = 6.13 hours) by beta emission; actinium-238 then decays to thorium-228 (half-life = 1.9 years) by beta emission; the decay chain continues, ultimately to produce the stable isotope, lead-208 (Friedlander *et al.*, 1964).

According to the results from parametric ANOVA, the mean activities of radium-228 in soil samples from the BSCP (mean = 1.35 pCi/g) and Rock Creek (mean = 2.18 pCi/g) studies show significant differences. Although small amounts of thorium-232 were used in industrial activities at RFETS, it is not considered to be associated with significant emissions from the plant (ChemRisk, 1994).

Both the BSCP and Rock Creek data sets are considered representative of background levels of radium-228 in surficial soils near RFETS.

Uranium (total)

Natural uranium consists of several isotopes, of which uranium-238 is the most abundant. Uranium is geochemically classified as a lithophile, in that it tends to be concentrated in felsic (granitic) igneous rocks, rather than in more mafic (basaltic) ones (Krauskopf, 1979). The uranium ion also tends not — because of its size and charge — to be substituted into the crystal lattices of other minerals; thus making it an incompatible lithophilic element that is accumulated in late-stage, residual magmatic fluids (Krauskopf, 1979).

Uranium is widely distributed in the earth's crust (mean = 2.7 mg/kg), with a preferential enrichment in granites (mean = 5.0 mg/kg) and shales (mean = 3.5 mg/kg) (Krauskopf, 1979). Generally, in soils, the hydroxides and hydrous oxides of actinides are the important phases (Rai and Kittrick, 1989).

Because the major uranium isotopes used during industrial activities at RFETS also occur naturally in the local environment, there is a need to distinguish naturally occurring uranium from potential uranium contamination from RFETS. Mineral deposits of uranium have been described for sedimentary rocks east of the Colorado Front Range, and vein-type deposits are found in Precambrian rocks within a few miles of RFETS (e.g., the Schwartzwalder Mine) (DOE, 1993). However, the isotopic abundances (by weight) in natural uranium are 99.2729 percent uranium-238, 0.7204 percent uranium-235, and 0.0057 percent uranium-234, whereas the percentages in enriched uranium for nuclear-powered reactors are about 97, 3, and 0.03 percent, respectively (EG&G, 1988). Even greater proportions of uranium-235 and uranium-234 enrichment may be found in some nuclear-weapons components (EG&G, 1988). Both enriched and depleted uranium were used in industrial activities at RFETS.

As noted in the *Background Geochemical Characterization Report* (DOE, 1993), uranium-234 contributes about 97 percent of the alpha activity in fully enriched uranium, whereas uranium-238 contributes about 76 percent of the alpha activity in fully depleted uranium. Therefore, the ratio of uranium-233+234 to uranium-238 may provide a means for distinguishing naturally occurring uranium from RFETS-related uranium. Calculations provided in the *Background Geochemical Characterization Report* (DOE, 1993) indicate that the ratios of relative activities of uranium-233+234 to uranium-238 are approximately 0.09 in depleted uranium, 1.06 in natural uranium, 5.74 in power-reactor fuel, and a higher ratio for weapons components. This said, the data analyst must be cognizant of the large analytical uncertainties for activities of uranium isotopes that are at or near the limit of detection. These large uncertainties must be taken into account when evaluating the isotopic ratios for uranium data.

For soil samples from RFETS, three isotopes of uranium are typically analyzed: uranium-238, uranium-235, and (combined) uranium-233+234. A separate discussion for each isotope is presented below.

Uranium-233,234

Uranium-233 and uranium-234 cannot be measured separately by the analytical methods employed for RFETS samples. These two isotopes comprise a small fraction of the total concentration of uranium in natural materials; uranium-234 occurs at a relative abundance of 0.0057 percent by weight. However, despite the low abundance of uranium-233+234 relative to other isotopes of uranium, uranium-233+234 contributes a large fraction of the total alpha activity associated with uranium (Friedlander *et al.*, 1964). The half-life of uranium-234 is 248,000 years (Friedlander *et al.*, 1964).

Results from parametric ANOVA indicate that the mean activities of uranium-233+234 in BSCP (1.097 pCi/g) and Rock Creek (1.145 pCi/g) samples are not significantly different. This finding agrees with the EDA, which indicated that the Rock Creek area was unaffected by uranium from industrial activities at RFETS.

Both the BSCP and Rock Creek data sets are considered to be representative of background levels of uranium-233+234 in surficial soils near RFETS.

Uranium-235

Uranium-235 is naturally occurring at a relative abundance of 0.72 percent by weight of total uranium. The half-life of uranium is about 713 million years (Friedlander *et al.*, 1964).

The mean activities of uranium-235 in BSCP (0.054 pCi/g) and Rock Creek (0.053 pCi/g) samples are not significantly different, as determined by parametric ANOVA. This finding concurs with that of the EDA, which concluded that the Rock Creek area was unimpacted by industrial activities at RFETS.

Both the BSCP and Rock Creek data sets are considered to be representative of background levels of uranium-235 in surficial soils near RFETS.

Uranium-238

As noted previously, uranium-238 constitutes greater than 99 percent (by weight) of naturally occurring uranium. Myrick *et al.* (1983) reviewed the published values for uranium-238 in the surficial soils of Colorado. The range of these values encompasses the range of values obtained for both the BSCP and Rock Creek samples.

Uranium-238 has a half-life of approximately 4.51 billion years, decaying through thorium-234 (half-life = 24.1 days), protactinium-234 (half-life about 6.7 hours), to uranium-234 (half-life = 248,000 years), and, ultimately to the stable isotope, lead-206 (Friedlander *et al.*, 1964).

There were two outliers for uranium-238 in the BSCP data set; these two values were not used to calculate the UTL for uranium-238, but the values were included in the calculation of all other BSCP summary statistics for uranium-238 (see Section 2.5 for discussion of statistical methodology). Results of parametric ANOVA indicate that the mean activities of uranium-238 in BSCP (1.183 pCi/g) and Rock Creek (1.090 pCi/g) samples are not significantly different. This agrees with the findings of the EDA, which indicated that the Rock Creek area was not impacted by uranium from industrial activities at RFETS.

Both the BSCP and Rock Creek data sets are considered representative of baseline levels of uranium-238 in surficial soils near RFETS.

4.3 GROUP 1 ANALYTES: SUPPORTING PARAMETERS

Ammonia

Only nine Rock Creek samples were analyzed for ammonia. The results from parametric ANOVA indicate that there is no significant difference between mean concentrations of ammonia in the 20 BSCP samples (2.0 mg/kg) and the nine Rock Creek samples (1.2 mg/kg).

Both data sets can be considered to provide representative values for baseline concentrations of ammonia in surficial soils near RFETS.

Carbonate as $CaCO_3$

No measurable concentrations of $CaCO_3$ were detected in the soil samples for either the BSCP or Rock Creek studies. In the semi-arid climate at RFETS, natural leaching during infiltration of precipitation into the soil will tend to dissolve $CaCO_3$ from the upper layers of the soil profile and redeposit $CaCO_3$ at a greater depth. Subsurface caliche (calcrete) horizons slowly form as a result of the mobilization and redeposition of $CaCO_3$ within the soil profile. Such subsurface carbonate deposits have been noted in soils across the Rocky Flats pediment surface.

Nitrate/Nitrite

Only nine Rock Creek samples were analyzed for nitrate/nitrite. The results from parametric ANOVA indicate that the mean concentration of nitrate/nitrite in the 20 BSCP samples (4.0 mg/kg) is significantly greater than that of the Rock Creek samples (2.3 mg/kg).

Oil and Grease

Analysis for oil and grease, a "water-quality parameter," was included only to complete the comparison with the Rock Creek data set. Results from parametric ANOVA indicate no significant difference between the BSCP (mean = 95 mg/kg) and Rock Creek (mean = 86 mg/kg) data sets.

pH

Only six of the Rock Creek samples were analyzed for pH, and four of these samples have higher pH values than any of the BSCP samples. The mean pH of the Rock Creek samples (7.6) is greater than the mean pH of the BSCP samples (6.4). The pH values for the combined BSCP/Rock Creek data set range from 6.0 to 9.1, with a combined mean of 6.65.

Specific Conductivity

Only six of the Rock Creek samples were analyzed for specific conductivity. Results from parametric ANOVA indicate that the mean specific conductivity for the Rock Creek samples is significantly different from that for the BSCP samples. The Rock Creek mean (22.06 μmhos/cm) was slightly greater than the BSCP mean (20.83 μmhos/cm).

Total Organic Carbon (TOC)

Only six of the Rock Creek samples were analyzed for TOC. Results from parametric ANOVA indicate no significant difference between the BSCP (mean = 16,130 mg/kg) and Rock Creek (mean = 15,570 mg/kg) data sets.

4.4 GROUP 2 ANALYTES: FALLOUT RADIONUCLIDES

Significant variability in the distribution of fallout radionuclides is found in the environment. This variability has been attributed to regional and local meteorological conditions and topographical features of the earth's surface. Weather patterns may have influenced the movement, dispersion, and ultimate deposition of radioactive debris onto the soil surface. Uneven distribution of fallout on the earth's surface also can be caused by rain and snow scavenging of radioactive particles from the atmosphere. As air masses moving from west to east across the United States are orographically lifted over mountain ranges, subsequent deposition of fallout radionuclides is greater on the downwind side of the mountain due to the downwind mixing of high-level air masses containing elevated concentrations of radionuclides from weapons testing. Measurements on the downwind sides of both the Cascade Mountain Range and the Rocky Mountains have demonstrated this effect (Perkins and Thomas, 1980; Purtyman *et al.*, 1990; Hardy *et al.*, 1973).

The comparison between the Rock Creek and remote BSCP data indicates that the differences in activities are relatively low compared to programmatic preliminary remediation goals (PPRGs) and other decision-making criteria (e.g., the 0.9 pCi/g Colorado construction standard for plutonium). Uncertainties associated with measuring low actinide activities near background levels are well documented (Bernhardt, 1976; Sill, 1982). The magnitude of the difference may be masked by the magnitude of the error determined by the propagation of error (counting error and analytical error) and laboratory precision (e.g., RPD of replicate analyses). As noted earlier, RFEDS data for radionuclides provide a value of the 95-percent UCL for each radionuclide analysis. The numeric value of 95-percent UCL is given as the "ERROR" variable in RFEDS data.

Summary statistics for the activities of fallout radionuclides for samples from the Rock Creek, and the BSCP studies, as well as for selected fallout radionuclides (i.e., all but americium and plutonium isotopes) for the combined data set, are presented in Table 4-5, and Table 4-6, respectively. Results of other studies are summarize in Table 4-7. Comparative illustrations of the ranges and means for fallout radionuclides and box-and-whisker plots are given in Figures 4-35 through 4-39 and Appendix D, respectively.

Americium-241

Fission and fusion from nuclear-weapons explosions create conditions for nuclear-capture reactions, which produce large quantities of plutonium-241 and small amounts of americium-241 (Schmidt, 1994). Americium-241 is a radioactive daughter product (by beta emission) of plutonium-241. The half-life of plutonium-241 is about 14.4 years, whereas the half-life of americium-241 is about 438 years, so americium-241 increases in abundance in soils as plutonium-241 decays.

Americium-241 is found in regional soils as a result of fallout from nuclear-weapons explosions. Near RFETS, americium-241 may also be present in soils as a result of industrial activities at RFETS, which released some weapons-grade plutonium into the environment. Most americium (as a daughter product of plutonium) was probably deposited onto soils as a result of the leakage of plutonium-contaminated cutting oils from waste barrels stored at the 903 Pad, which is located at the eastern edge of the RFETS Industrial Area.

Subsequent resuspension of contaminated soil particles from the 903 Pad, entrainment into the atmosphere, and redeposition onto soil in areas downwind (generally east of the 903 Pad) are thought to be the major mode for americium and plutonium contamination in soils on and nearby RFETS (ChemRisk, 1994). Other minor contributions of americium and plutonium contamination that may have impacted soils on and nearby RFETS, included two fires (1957 and 1969) in the production facilities, and routine releases of small amounts of plutonium and americium throughout the production history of RFETS (ChemRisk, 1994).

Results from the application of parametric ANOVA indicate that the BSCP and Rock Creek mean activities for americium-241 were significantly different, with the Rock Creek mean (0.020 pCi/g) higher than the BSCP mean (0.0107 pCi/g). Because it is not clear whether the higher americium-241 activity at Rock Creek is a result of RFETS industrial activity, total study error, or regional variation in fallout distribution, the BSCP data set (Group 2, remote) is the better choice to represent background levels of americium-241 in surficial soils, and should be used for future RCRA/CERCLA decisions.

Cesium (total)

Cesium is an alkali metal that is readily taken up by vegetation, or bound strongly to soils (i.e., it is not preferentially partitioned into the aqueous phase). Because of this geochemical behavior, all isotopes of cesium deposited from fallout, which peaked in 1963 (Glasstone and

Jordan, 1980), have been since redistributed by erosional processes. As soils are eroded and redeposited, so is the cesium. This redistribution has created post-depositional zones of relative radiocesium depletion (i.e., erosional areas) and zones of relative radiocesium enrichment (i.e., areas of soil and sediment accumulation). Because of this tendency for post-depositional redistribution, soil samples collected for comparison should be taken from similar erosional or depositional zones.

Cesium-134

Cesium-134 is found in regional soils as a result of fallout from nuclear-weapons explosions. The half-life of cesium-134 is approximately two years (Friedlander *et al.*, 1964).

For the BSCP study, cesium-134 was included in the list of analytes for completeness and comparability with existing data. According to the results of nonparametric ANOVA, the mean activity of cesium-134 in BSCP samples is significantly higher than that of the Rock Creek samples. However, because no local source of cesium-134 has been identified, the difference between Rock Creek and BSCP remote data for cesium-134 is attributed to regional variation in fallout distribution or differential post-depositional redistribution, rather than potential contamination from RFETS. The mean activities of cesium-134 for the BSCP and Rock Creek data sets are 0.20 and 0.084 pCi/g, respectively.

Both the BSCP (Group 2, remote) and Rock Creek data sets are considered to represent fallout background levels for cesium-134 in surficial soils of the Colorado Front Range.

Cesium-137

Cesium-137 is distributed in regional soils as a result of fallout from nuclear-weapons explosions. Cesium-137 has a half-life of approximately 30 years (Friedlander *et al.*, 1964). Because cesium-137 emits gamma radiation, its presence in soils can readily be determined by field instruments. Cesium-137 was distributed world-wide by fallout, and has been used as an indicator of disturbance of surface soils (including natural erosion and deposition) because of its strong binding ability to soils and the ease of detecting cesium-137 with field instruments (Ritchie and McHenry, 1990; Arnalds *et al.*, 1989). Although cesium-137 has not been associated with RFETS industrial activities, it was included in the list of BSCP analytes for completeness and comparability with existing data.

Results from parametric ANOVA indicate that the mean activity of cesium-137 in Rock Creek samples (mean = 1.41 pCi/g) is not significantly different from that of the BSCP samples (mean = 0.941 pCi/g).

Both the BSCP and Rock Creek data sets are considered to represent fallout background levels for cesium-137 in surficial soils along the Front Range urban corridor.

Plutonium-239+240

Weapons-grade plutonium is composed of the following isotope mixture by weight (ChemRisk , 1994):

Plutonium-238	0.01 %
Plutonium-239	93.79 %
Plutonium-240	5.80 %
Plutonium-241	0.36 %
Plutonium-242	0.03 %

As discussed in Section 2.4.4, the alpha spectrometry used for plutonium analysis cannot resolve the alpha energies of plutonium-239 from plutonium-240, so they are reported together. Monitoring at RFETS has focused attention on the most abundant isotopes of plutonium; plutonium-239 and plutonium-240. The half-life of plutonium-239 is approximately 24,400 years; the half-life of plutonium-240 is approximately 6,580 years (Friedlander *et al.*, 1964). Table 4-7 presents the range of plutonium activities for other background sampling efforts in the Front Range region.

Plutonium is relatively immobile in soil and is unlikely to move vertically downward through the soil column. Krey *et al.* (1976) found that 90 percent of the plutonium activity in soils at and near RFETS was held in the upper 10 centimeters of soil. Litaor *et al.* (1994) sampled 26 soil pits east of the 903 Pad and found that 90 percent of the activity was contained in the upper 12 cm of soil. Data compiled from 173 soil samples in several western states, including Colorado, sampled in two depth increments (i.e., 0 to 5 cm and 5 to 30 cm) indicated that as recently as 1987, more than 83 percent of the plutonium was found in the upper 5 cm of soil (McArthur and Miller, 1989); most of these samples were located remotely from the Nevada Test Site (NTS).

These studies indicate that most of the plutonium accumulated from local, regional, and global sources appears to have remained in the surface-soil layer. Erosion and redeposition on the soil surface by wind, water, snowdrifting, burrowing animals, and other faunal activity may be additional factors affecting the variability of plutonium concentrations in the surficial soils.

Results from parametric ANOVA between BSCP and Rock Creek data for plutonium-239+240 activities indicate that the mean activity for the Rock Creek study (0.055 pCi/g) is significantly greater than that of the BSCP study (0.038 pCi/g). However, at these low levels, the error term is approximately equal to one-half the reported result. If the analytical uncertainty, expressed as the 95-percent UCL, is added to these means, there would be overlap of the values. However, because it is not clear whether the higher plutonium-239+240 activity in Rock Creek is due to RFETS industrial activity, total study error, or regional variation, the BSCP data for the 50 remote samples should be used for future RCRA/CERCLA decisions concerning background levels of plutonium.

Strontium-89+90

Both these isotopes of strontium are fission products whose presence in soils is a result of world-wide fallout from above-ground nuclear-weapons testing. Although there is no indication of a strontium-89+90 source from RFETS, it is included in the list of analytes for completeness and comparability with existing data.

Results from parametric ANOVA show that strontium-89+90 activities in Rock Creek samples (mean = 0.618 pCi/g) are significantly higher than those from the 50 remote (Group 2) BSCP samples (mean = 0.254 pCi/g). However, both data sets have large standard deviations, which when added to or subtracted from the means, show an overlap of the values. No local source of these isotopes has been identified.

Because the values of the two means plus or minus one standard deviation overlap, the differences between Rock Creek and BSCP remote data for strontium-89+90 are attributed to analytical or regional variations. Both BSCP and Rock Creek data are considered to represent background levels for strontium-89+90 in surficial soils near RFETS.

4.5 CONCLUSIONS: BSCP AND ROCK CREEK DATA SETS

Despite statistically significant differences between the Rock Creek and BSCP data for some analytes, both the Rock Creek and BSCP data sets are generally considered to be subsets of the overall background population. Tables 5-9 and 5-10 provide the summary statistics for a combined BSCP and Rock Creek data set. As stated in Section 4.1, the outliers for cobalt and manganese were not used to calculate the UTLs for these two metals, but were retained for calculating their summary statistics.

The results of the BSCP study verify the background nature of the Rock Creek area. However, because the BSCP data set is so well documented and because the BSCP work plan was prepared with significant input from the regulatory agencies, it is recommended here that the BSCP data set be used to represent background levels of metals, naturally occurring radionuclides, and fallout radionuclides in surficial soils, to be compared with site data for future decisions concerning the RFETS area. Using one data set (i.e., BSCP) instead of the combined data set (i.e., BSCP + Rock Creek) also eliminates the problem of how to treat the discrepancies in reported detection limits for some analytes in the two studies. However, because the BSCP data basically confirm the validity of the Rock Creek area as representative of background, previous work performed and conclusions based on using the Rock Creek data set as background shall not be redone or re-evaluated.

SECTION 4
TABLES

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TABLE 4-1

SUMMARY STATISTICS FOR ROCK CREEK GROUP 1 ANALYTES: METALS AND NATURALLY OCCURRING RADIONUCLIDES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	Tol Factor	99/99 UTL	Units
Aluminum	Lognormal	18	0	8550	17950	12993	2251.5	3.9604	21910	mg/kg
Antimony	X	18	100	4.2U	7.3U	X	X	3.9604	X	mg/kg
Arsenic	Normal	18	0	2.1	8.5	5.82	1.81	3.9604	12.86	mg/kg
Barium	Nonparam	18	0	120	470	195	84.58	3.9604	530.0	mg/kg
Beryllium	Lognormal	18	43	0.44	1.1	0.681	0.119	3.9604	1.1523	mg/kg
Cadmium	Nonparam	17	71	0.3U	1.8	0.732	0.434	4.0367	2.45	mg/kg
Calcium	Lognormal	18	0	2260	8810	5068.1	2220.5	3.9604	13862	mg/kg
**Cesium	Lognormal	18	48	.225U	75U	31.29	30.13	3.9604	831.6	mg/kg
Chromium	Normal	18	0	10.5	20.2	15.029	2.476	3.9604	24.85	mg/kg
*Cobalt	Lognormal	18	0	4.4	24	7.778	4.308	3.9604	24.839	mg/kg
Copper	Normal	18	0	7.7	18.45	12.964	3.629	3.9604	27.34	mg/kg
Iron	Lognormal	18	0	10400	24900	15382	3226.6	3.9604	28160	mg/kg
Lead	Lognormal	18	0	29.35	51	37.535	6.024	3.9604	61.392	mg/kg
Lithium	Normal	18	0	7.1	14.95	10.981	2.273	3.9604	19.97	mg/kg
Magnesium	Lognormal	18	0	1440	5195	2853.3	1050	3.9604	7011.6	mg/kg
*Manganese	Lognormal	18	0	188.5	2220	443.6	457.04	4.1233	2328.1	mg/kg
Mercury	X	18	96	0.03U	0.075U	X	X	3.9604	X	mg/kg
Molybdenum	X	18	96	0.7U	2.7	X	X	3.9604	X	mg/kg
Nickel	Normal	18	0	7.8	18.7	12.578	3.588	3.9604	26.8	mg/kg
Potassium	Normal	18	0	1950	4205	2977.9	575.43	3.9604	5157	mg/kg
Selenium	Normal	18	22	0.105U	0.76	0.43	0.196	3.9604	1.21	mg/kg
**Silicon	Nonparam	18	0	54.8	1845	780.96	700.48	3.9604	8180	mg/kg
Silver	X	18	100	0.5U	1.45U	X	X	3.9604	X	mg/kg
Sodium	Lognormal	18	43	56.9	192.5	115.37	33.658	3.9604	248.67	mg/kg
Strontium	Lognormal	18	0	20.9	79.05	35.335	13.821	3.9604	90.072	mg/kg
Thallium	Normal	18	65	0.105U	0.41	0.23	0.084	3.9604	0.563	mg/kg
Tin	X	18	39	10.75U	58.5	32.541	12.936	3.9604	83.79	mg/kg
Vanadium	Normal	18	0	20.95	45.6	31.603	60.49	3.9604	55.56	mg/kg
Zinc	Lognormal	18	0	41.4	70.58	55.818	7.784	3.9604	86.646	mg/kg
Radium-226	Lognormal	10	0	0.75	1.1	0.945	0.128	5.0737	1.5944	pCi/g
Radium-228	Normal	10	0	1.3	2.9	2.177	0.531	5.0737	4.874	pCi/g
Uranium-233/234	Lognormal	16	0	0.91	1.472	1.145	0.156	4.1233	1.7882	pCi/g
Uranium-235	Lognormal	16	0	0.011	0.12	0.053	0.033	4.1233	0.1891	pCi/g
Uranium-238	Lognormal	16	0	0.9	1.521	1.183	0.188	4.1233	1.9582	pCi/g

X = Not applicable because > 80% data were non-detects
% Non-detects are calculated from all accepted valid data except equipment rinsates
Min and Max values: highest/lowest detected value or, if no detected values, 1/2 IDL followed by U
IDL = instrument detection limit
*Manganese contains 2 outliers, cobalt one; outliers included in summary stats, not included for UTLs
**Cesium and Silicon exhibit bimodal distributions; Cesium bimodal is due to two different IDL's
All UTLs are calculated assuming normal distribution.

TABLE 4-2

SUMMARY STATISTICS FOR ROCK CREEK: SUPPORTING DATA TYPES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	99/99 UTL	Units
Ammonia	Normal*	9	50	0.172U	4.81	1.614	1.56	NC	mg/kg
Carbonate	X	3	100	25U	25U	X	X	X	mg/kg
Nitrate/Nitrite	Normal*	9	0	0.705	4.79	2.319	1.47	NC	mg/kg
Oil & Grease	Normal*	9	10	27U	160	81.7	40.7	NC	mg/kg
pH	Normal*	6	0	6.39	9.1	7.63	0.93	NC	pH
Specific Conductance	Normal*	6	0	11.2	32.75	22.06	9.43	NC	umhos/cm
Total Organic Carbon	Normal*	6	0	9970	19900	15570	3783	NC	mg/kg

X = Not calculated because 100% of data were non-detects.
Normal* = Assumed to be normal distribution for summary statistics of supporting data
NC = Not calculated

TABLE 4-3

GROUP 1 ANALYTES WITH GREATER THAN 80% DETECTION FREQUENCY IN BSCP OR ROCK CREEK DATA SETS

Analyte	% Non-Detect		Mean (pCi/g or mg/kg)		Maximum (pCi/g or mg/kg)		Different?	Comment
	BSCP	Rock Creek	BSCP	Rock Creek	BSCP	Rock Creek		
Antimony	100	100	X	X	0.94U	14.6U	inconclusive	BSCP used a lower detection limit
Cesium	100	48	X	2.36	14U	150U or 3 (for detects)	inconclusive	All RC non-detects had high CRDL for ss (pediment). With lower IDL, mean of detects is 2.36 pCi/g and Max is 3.
Mercury	65	100	0.072	X	0.12	0.15U	inconclusive	
Molybdenum	91	96	X	X	1.8U	5.8U	inconclusive	
Silver	100	100	X	X	0.44U	2.9U	inconclusive	
Thallium	100	65	X	0.23	0.445U	0.41	inconclusive	
Tin	91	41	X	32.54	4.85	58.5	yes	Discrepancies in RC detection limit are being investigated
Carbonate	100	100	X	X	25U	5.5U	no	

X = Not applicable because there were greater than 80% non-detects.

TABLE 4-4

ROCK CREEK vs BSCP DATA FOR GROUP 1 ANALYTES: RESULTS OF STATISTICAL TESTS

Element	BSCP			Rock Creek			BSCP and Rock Creek Comparison				
	Distribution	Shapiro-Wilk	Significance	Distribution	Shapiro-Wilk	Significance	Levene	Significance	Kruskal-Wallis	Significance	Significantly Different?
Aluminum	Normal	0.971	0.746	Lognormal	0.9762	0.867	X	X	6.33	0.012	yes
Arsenic	Normal	0.968	0.677	Normal	0.9532	0.473	0.126	0.725	0.1935	0.6626	no
Barium	Normal	0.9128	0.076	Nonparam	0.8917	0.043	X	X	26.49	0	yes
Beryllium	Normal	0.9444	0.35	Lognormal	0.9338	0.288	X	X	0.026	0.872	no
Cadmium	Nonparam	X	X	Nonparam	X	X	X	X	0.0002	0.9878	no
Calcium	Normal	0.9729	0.778	Lognormal	0.9374	0.323	X	X	11.01	0.001	yes
Chromium	Normal	0.9874	0.987	Normal	0.9653	0.668	0.562	0.458	18.5	0.001	yes
Cobalt	Normal	0.9876	0.988	Lognormal	0.9578	0.567	X	X	2.01	0.156	no
Copper	Nonparam	0.858	<.01	Normal	0.9086	0.084	X	X	0.031	0.861	no
Iron	Normal	0.9766	0.851	Lognormal	0.9448	0.393	X	X	7.72	0.006	yes
Lead	Normal	0.9744	0.809	Lognormal	0.9284	0.237	X	X	1.51	0.219	no
Lithium	Lognormal	0.9685	0.69	Normal	0.9707	0.767	X	X	14.12	0.0002	yes
Magnesium	Lognormal	0.9289	0.191	Lognormal	0.9818	0.948	X	X	10.34	0.001	yes
Manganese	Normal	0.9692	0.704	Lognormal	0.9001	0.0845	X	X	7.94	0.005	yes
Nickel	Normal	0.9792	0.903	Normal	0.9307	0.259	2.68	0.11	8.41	0.0063	yes
Potassium	Normal	0.9795	0.906	Normal	0.9562	0.503	0.984	0.328	30.08	0	yes
Selenium	Nonparam	0.8759	0.015	Normal	0.9261	0.216	X	X	5.82	0.016	yes
Silicon	Normal	0.9587	0.4969	Nonparam	0.7887	<.01	X	X	4.07	0.044	yes
Sodium	Lognormal	0.9599	0.5184	Lognormal	0.9481	0.425	0.162	0.69	53.79	0	yes
Strontium	Lognormal	0.9303	0.2052	Lognormal	0.949	0.434	0.318	0.58	3.61	0.0655	no
Vanadium	Normal	0.9848	0.968	Normal	0.9503	0.445	1.04	0.315	2.6622	0.1115	no
Zinc	Normal	0.9729	0.777	Lognormal	0.9773	0.888	X	X	3.03	0.082	no
Ra-226	Lognormal	0.9636	0.6257	Lognormal	0.9204	0.3977	0.733	0.399	11.03	0.0025	yes
Ra-228	Normal	0.9552	0.4608	Normal	0.9435	0.5644	0.566	0.458	18.38	0.002	yes
U-233/234	Lognormal	0.746	<.01	Normal	0.9307	0.3145	X	X	13.066	0.0003	yes
U-235	Lognormal	0.898	0.04	Lognormal	0.9522	0.5029	10.75	0.002	0.5601	0.4542	no
U-238	Lognormal	0.962	0.604	Lognormal	0.9567	0.5789	1.58	0.217	2.14	0.1522	no
Ammonia	Normal*	NC	NC	Normal*	NC	NC	NC	NC	0.4441	0.5052	no

Table 4-4. (continued).

Element	BSCP			Rock Creek			BSCP and Rock Creek Comparison				
	Distribution	Shapiro-Wilk	Significance	Distribution	Shapiro-Wilk	Significance	Levene	Significance	Kruskal-Wallis	Significance	Significantly Different?
Nitrate/Nitrite	Normal*	NC	NC	Normal*	NC	NC	NC	NC	6.8885	0.0087	yes
Oil & Grease	Normal*	NC	NC	Normal*	NC	NC	NC	NC	1.5063	0.2197	no
pH	Normal*	NC	NC	Normal*	NC	NC	NC	NC	9.4137	0.0022	yes
Sp. Conduct.	Normal*	NC	NC	Normal*	NC	NC	NC	NC	13.375	0.0003	yes
T.O.C	Normal*	NC	NC	Normal*	NC	NC	NC	NC	0.0336	0.8545	no

Sp. Conduct. = Specific conductivity; T.O.C. = Total Organic Carbon
X = Not calculated because nonparametric (determined a priori to be neither normal nor lognormal).
NC = not calculated
Normal* = assumed to be normal distribution for these purposes

TABLE 4-5

SUMMARY STATISTICS FOR ROCK CREEK, GROUP 2 ANALYTES: FALLOUT RADIONUCLIDES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	Tol Fact	99/99 UTL	Units
Americium-241	Lognormal	14	0	0.0095	0.036	0.02	0.007	4.3372	0.05036	pCi/g
Cesium-134	Nonparam	9	0	0.071	0.1	0.084	0.012	5.3889	0.148667	pCi/g
Cesium-137	Lognormal	12	0	0.71	2.5	1.41	0.49	4.633	3.68017	pCi/g
Plutonium-239/240	Lognormal	18	0	0.026	0.1	0.055	0.014	3.9604	0.110446	pCi/g
Strontium-89/90	Normal	9	0	0.095	1	0.618	0.298	5.3889	2.23892	pCi/g

All UTLs are calculated assuming normal distribution.

TABLE 4-6

ROCK CREEK vs BSCP DATA FOR GROUP 2 ANALYTES: RESULTS OF STATISTICAL TESTS

Analyte	BSCP			Rock Creek			BSCP and Rock Creek Comparison				
	Distribution	Shapiro-Wilk	Significance	Distribution	Shapiro-Wilk	Significance	Levene	Significance	Kruskal-Wallis	Significance	Significantly Different?
Am-241	Nonparam	0.9359	0.0174	Lognormal	0.9783	0.933	11.32	0.001	10.82	0.001	yes
Cs-134	Nonparam	0.8144	<.01	Nonparam	0.8227	0.045	20.3	0	14.3	0.0002	yes
Cs-137	Lognormal	0.962	0.246	Lognormal	0.974	0.9065	1	0.321	0.026	0.872	no
Pu-239/240	Lognormal	0.9677	0.3672	Lognormal	0.9606	0.5842	0.1263	0.723	14.11	0.0004	yes
Sr-89/90	Lognormal	0.9747	0.5255	Normal	0.9613	0.7840	NA	NA	11.32	0.0008	yes

TABLE 4-7

REGIONAL $^{239/240}Pu$ CONCENTRATIONS IN SURFACE SOILS

Range (pCi/g)	Reference	Notes
0.012 - 0.063	Poet and Martell (1972) and Schmidt (1994)	0-1 cm depth, Loveland, Brighton, Cripple Creek areas
0. - 0.06	CDH - Terry (1991) and Schmidt (1994)	Eight Colorado communities, 0-0.64 cm depth, 2 mm sieve
0.024 - 0.038	McArthur and Miller (1989)	6 Colorado western slope sites, 0-5 cm depth, assumed soil density of 1 g/cm^3 for range calculation
0.014 - 0.077	Lawton (1989) unpublished	8 communities in eastern half of Colorado, 0-5 cm depth
0.0012 - 0.081	Purtymun et al. (1990)	Soils in northern New Mexico and southern Colorado, 1981, 1983, 1986, 0-5 cm depth
0.031 - 0.091	Webb et. al. (1994)	10 background locations from northeast of Ft. Collins to Colorado Springs, 0-3 cm depth

TABLE 4-8

CORRELATION COEFFICIENTS FOR BSCP METALS

Metal	% Detects	Al, r-value	Fe, r-value	Mn, r-value	Si, r-value
Aluminum	100	1.00	0.79	0.31	0.69
Antimony*	4	Not calc.	Not calc.	Not calc.	Not calc.
Arsenic	100	0.33	0.50	0.48	0.13
Barium	100	0.64	0.65	0.43	0.37
Beryllium	100	0.90	0.32	0.39	0.68
Cadmium	61	0.19	0.31	0.13	0.19
Calcium	100	0.79	0.44	0.06	0.61
Cesium*	0	Not calc.	Not calc.	Not calc.	Not calc.
Chromium	100	0.96	0.83	0.44	0.63
Cobalt	100	0.66	0.57	0.65	0.58
Copper	100	0.85	0.80	0.45	0.62
Iron	100	0.79	1.00	0.55	0.45
Lead	100	0.28	0.44	0.37	0.14
Lithium	100	0.86	0.80	0.41	0.43
Magnesium	100	0.89	0.67	0.11	0.62
Manganese	100	0.31	0.55	1.00	0.05
Mercury	35	0.19	0.05	0.22	0.02
Molybdenum*	9	Not calc.	Not calc.	Not calc.	Not calc.
Nickel	100	0.88	0.76	0.47	0.69
Potassium	100	0.91	0.77	0.36	0.54
Selenium	61	0.09	0.05	0.12	0.20
Silicon	100	0.69	0.45	0.05	1.00
Silver*	0	Not calc.	Not calc.	Not calc.	Not calc.
Sodium	100	0.46	0.38	0.11	0.32
Strontium	100	0.80	0.54	0.01	0.70
Thallium*	0	Not calc.	Not calc.	Not calc.	Not calc.
Tin*	9	Not calc.	Not calc.	Not calc.	Not calc.
Vanadium	100	0.90	0.77	0.57	0.61
Zinc	100	0.86	0.75	0.32	0.61

* Correlation coefficients not calculated for analytes with low detection rates.

Al, r-value: Results of linear regression analysis, using aluminum (Al) concentration as the independent variable.
Fe, r-value: Results of linear regression analysis, using iron (Fe) concentration as the independent variable.
Mn, r-value: Results of linear regression analysis, using manganese (Mn) concentration as the independent variable.
Si, r-value: Results of linear regression analysis, using silicon (Si) concentration as the independent variable.

TABLE 4-9

SUMMARY STATISTICS FOR THE SIMPLY COMBINED BSCP AND ROCK CREEK DATA SETS FOR GROUP 1 ANALYTES: METALS AND NATURALLY OCCURRING RADIONUCLIDES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	Tol Fact	99/99 UTL	Units
Aluminum	Normal	38	0	4050	17950	11545	3155	3.2804	21894.66	mg/kg
Antimony	X	38	98	0.19U	0.626	X	X	3.2804	X	mg/kg
Arsenic	Normal	38	0	2.1	9.6	5.96	1.89	3.2804	12.16	mg/kg
Barium	Lognormal	38	0	45.7	470	146.3	75.37	3.2804	355.83	mg/kg
Beryllium	Normal	38	21	0.24	0.96	0.67	0.137	3.2804	1.12	mg/kg
Cadmium	Lognormal	37	55	0.295U	2.3	0.722	0.436	3.2975	2.10	mg/kg
Calcium	Lognormal	38	0	1450	8810	3963	1919	3.2804	9704.01	mg/kg
Cesium	X	38	80	.255U	3	X	X	3.2804	X	mg/kg
Chromium	Normal	38	0	5.5	20.2	13.06	3.25	3.2975	23.72	mg/kg
*Cobalt	Lognormal	38	0	3.4	24	7.52	3.21	3.2804	13.03	mg/kg
Copper	Normal	38	0	5.2	18.45	12.95	3.07	3.2804	23.02	mg/kg
Iron	Lognormal	38	0	7390	24900	13891	3271	3.2804	24874.82	mg/kg
Lead	Normal	38	0	8.6	53.3	35.4	8.8	3.2804	64.27	mg/kg
Lithium	Lognormal	38	0	4.8	14.95	9.25	2.66	3.2804	18.45	mg/kg
Magnesium	Normal	38	0	188.5	2800	1217	873	3.2804	4080.79	mg/kg
*Manganese	Lognormal	38	0	129	2220	335	330.1	3.2975	596.52	mg/kg
Mercury	X	38	80	0.03U	0.12	X	X	3.2804	X	mg/kg
Molybdenum	X	38	94	0.29U	2.7	X	X	3.2804	X	mg/kg
Nickel	Normal	38	0	3.8	18.7	11.03	3.42	3.2804	22.25	mg/kg
Potassium	Normal	38	0	1110	4205	2495	688	3.2804	4751.92	mg/kg
Selenium	Normal	38	30	0.105U	1.4	0.538	0.27	3.2804	1.42	mg/kg
Silicon	Normal	38	0	54.8	1845	1098	578.7	3.2804	2996.47	mg/kg
Silver	X	38	100	0.19U	1.45U	X	X	3.2804	X	mg/kg
Sodium	Lognormal	38	22	43.8	192.5	87.36	36.86	3.2804	204.70	mg/kg
Strontium	Lognormal	38	0	9.6	79.05	31.71	12.4	3.2804	72.83	mg/kg
Thallium	X	33	83	.105U	0.41	X	X	3.2804	X	mg/kg
Tin	Lognormal	38	65	1.35U	58.5	16.54	17.71	3.3754	174.17	mg/kg
Vanadium	Normal	38	0	10.8	45.8	29.63	7.23	3.2804	53.35	mg/kg
Zinc	Normal	38	0	21.1	75.9	52.53	10.63	3.2804	87.40	mg/kg
Radium-226	Normal	30	0	0.1	1.1	0.728	0.212	3.4465	30.00	pCi/g
Radium-228	Normal	30	0	0.2	2.9	1.63	0.628	3.4465	30.00	pCi/g
Uranium-233/234	Lognormal	36	0	0.66	3.1	1.12	0.438	3.3154	1.64	pCi/g
Uranium-235	Lognormal	36	0	0.011	0.12	0.053	0.026	3.3154	0.41	pCi/g
Uranium-238	Lognormal	36	0	0.74	2.6	1.13	0.36	3.3154	9.36	pCi/g

X = Not applicable because >80% of data were non-detects
S.D. = Standard Deviation
* Cobalt contains 2 outlier and manganese contains 1; outliers included in Summary Statistics but not in UTLs

TABLE 4-10

SUMMARY STATISTICS FOR THE SIMPLY COMBINED BSCP AND ROCK CREEK DATA SETS: SUPPORTING DATA TYPES

Analyte	Distribution	Count (n)	% Non-Detect	Min	Max	Mean	Standard Deviation	99/99 UTL	Units
Ammonia	Normal*	29	41	.172U	7	1.9	1.78	NC	mg/kg
Carbonate	Normal*	23	100	5U	25U	X	X	NC	mg/kg
Nitrate/Nitrite	Normal*	29	0	0.705	7	3.48	1.78	NC	mg/kg
Oil & Grease	Normal*	29	3	.027U	160	90.57	27.64	NC	mg/kg
pH	Normal*	26	0	6	9.1	6.65	0.72	NC	pH
Specific Conductance	Normal*	26	0	0.1	0.53	0.211	0.089	NC	mmhos/cm
Total Organic Carbon	Normal*	26	0	4920	19900	16003	2907	NC	mg/kg
***% Clay	Normal*	20	0	7	36	20.45	8.62	NC	%
***% Sand	Normal*	20	0	22	76	43.93	15.27	NC	%
***% Silt	Normal*	20	0	18	45.5	35.76	7.52	NC	%
***Bulk Density	Normal*	20	0	0.9	1.2	0.92	0.07	NC	g/cm^3

*** No Rock Creek data available for these parameters
Normal*: Supporting data were assumed to be normal distribution for summary stats
NC: Not calculated
X = not applicable because > 80% of data were non-detects

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SECTION 4

FIGURES

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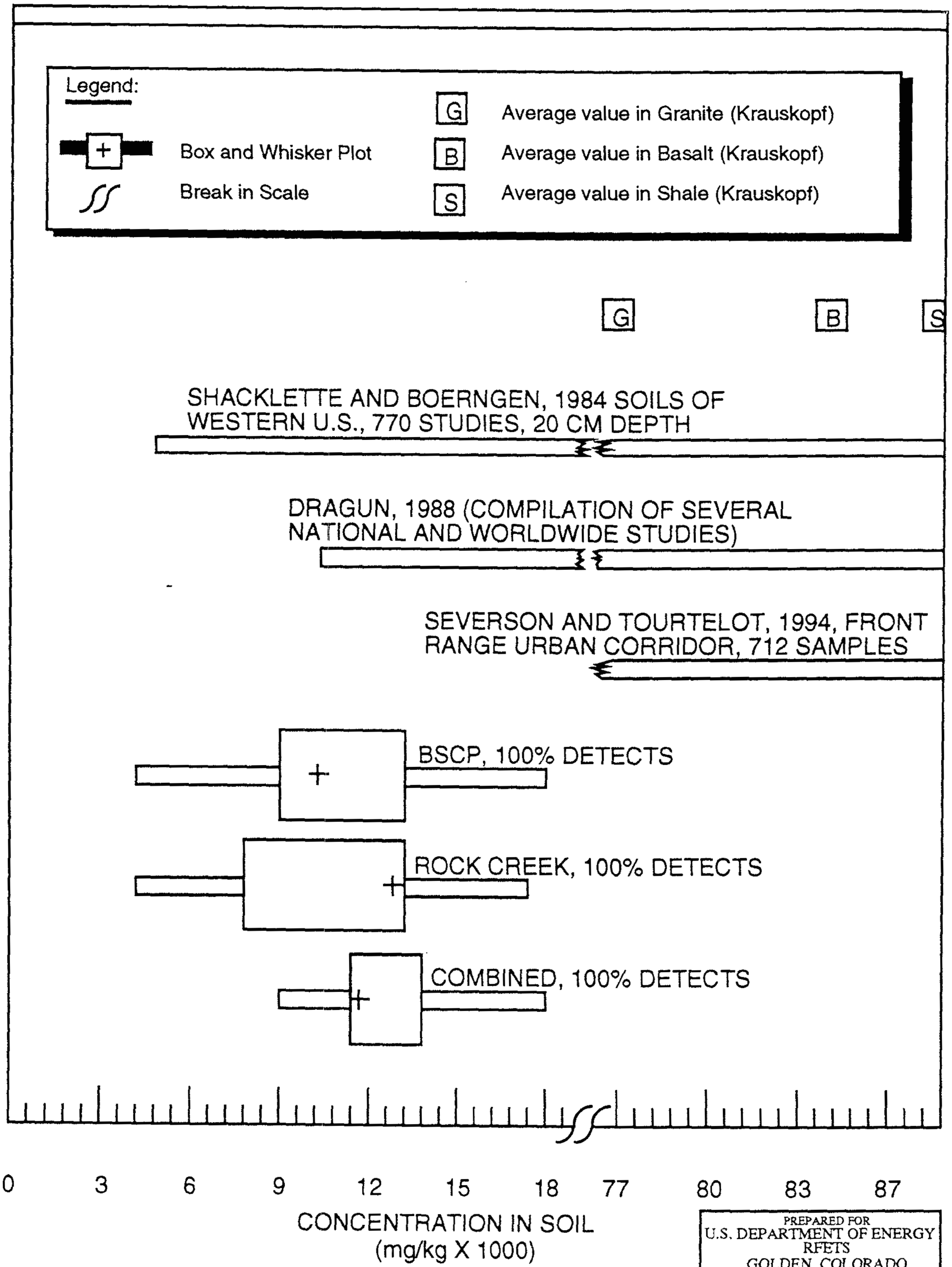
ALUMINUM



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GOLDEN, COLORADO

FIGURE 4-1
ALUMINUM

ANTIMONY

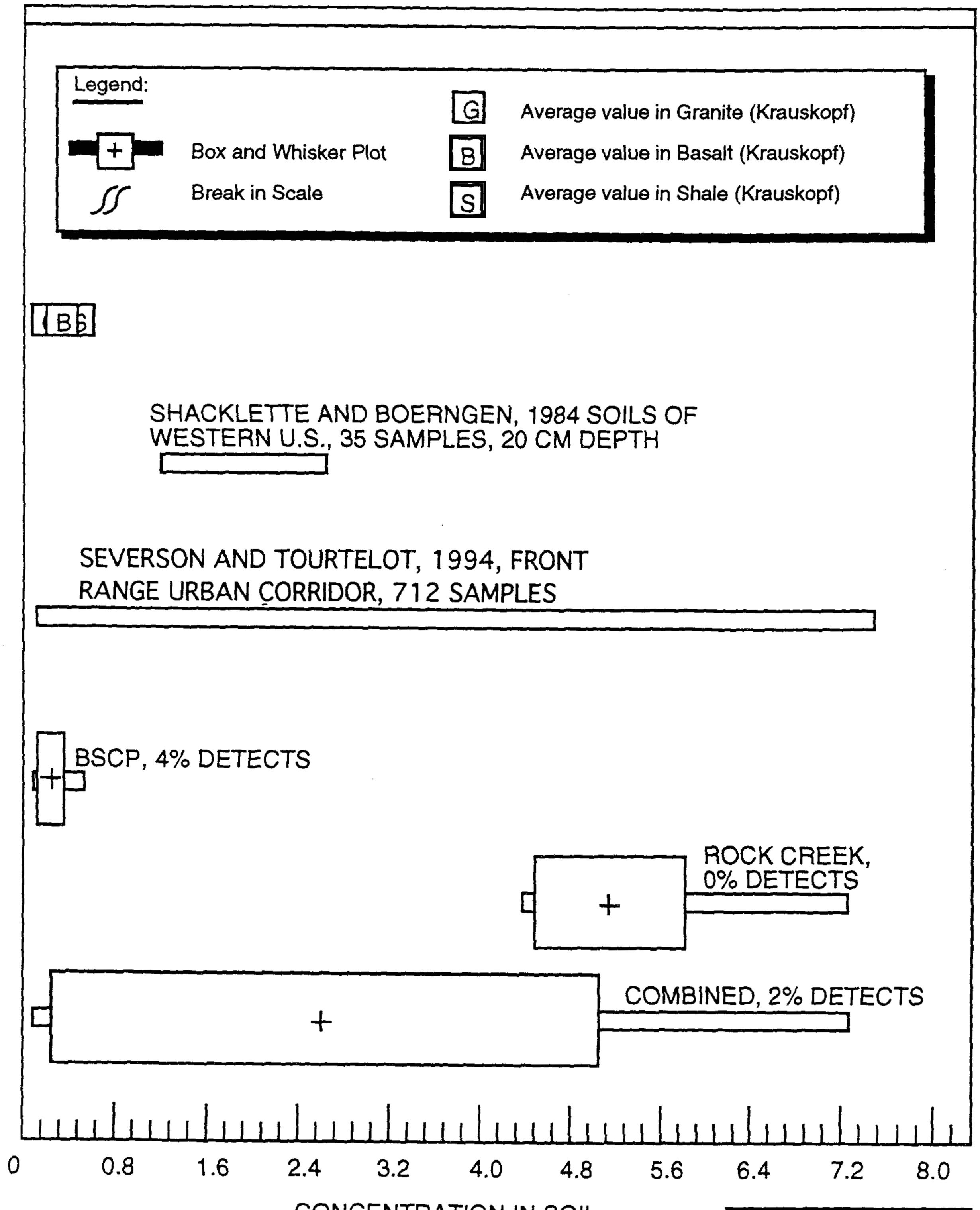

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FIGURE 4-2
ANTIMONY

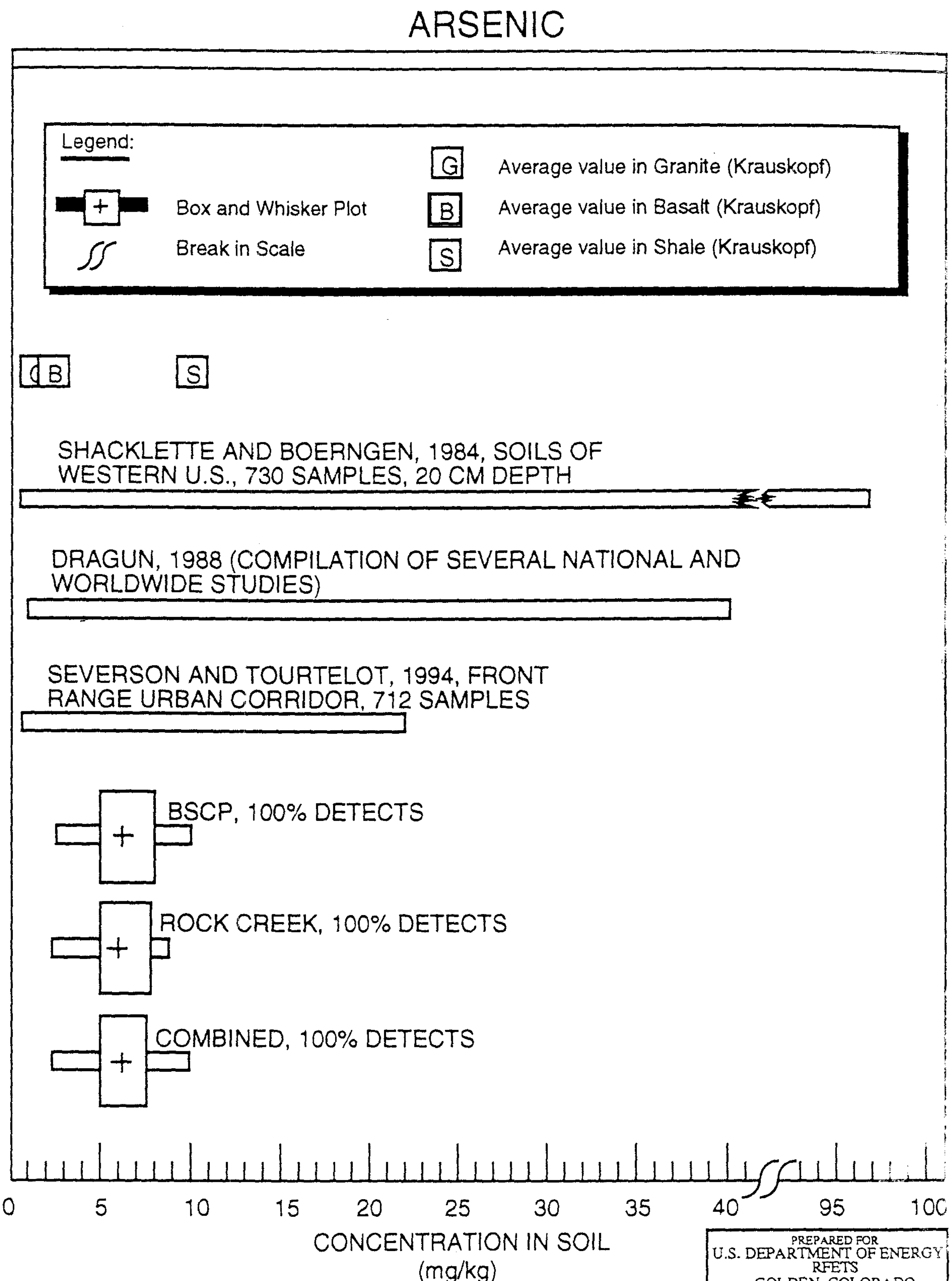

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FIGURE 4-3
ARSENIC

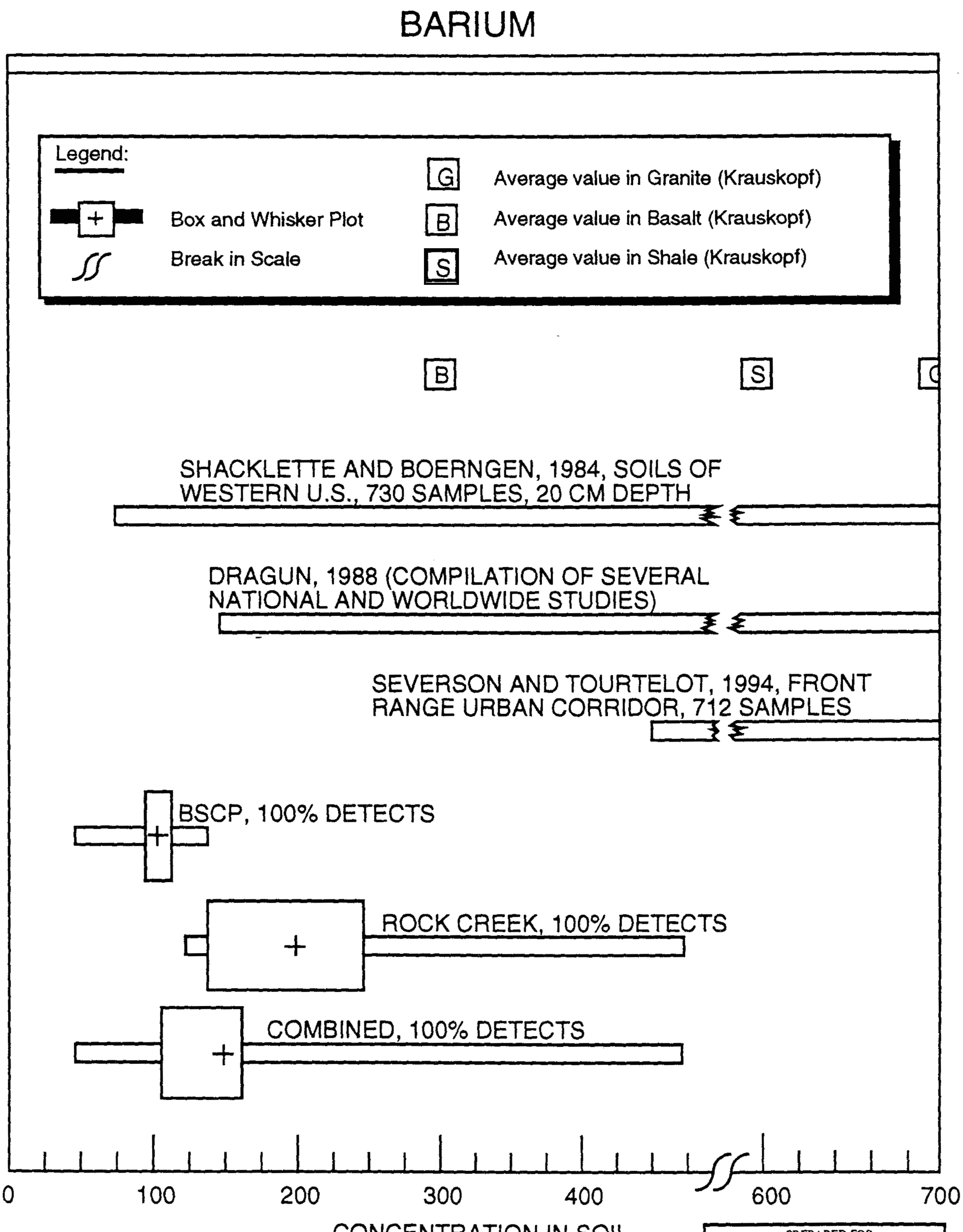

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FIGURE 4-4
BARIUM

BERYLLIUM

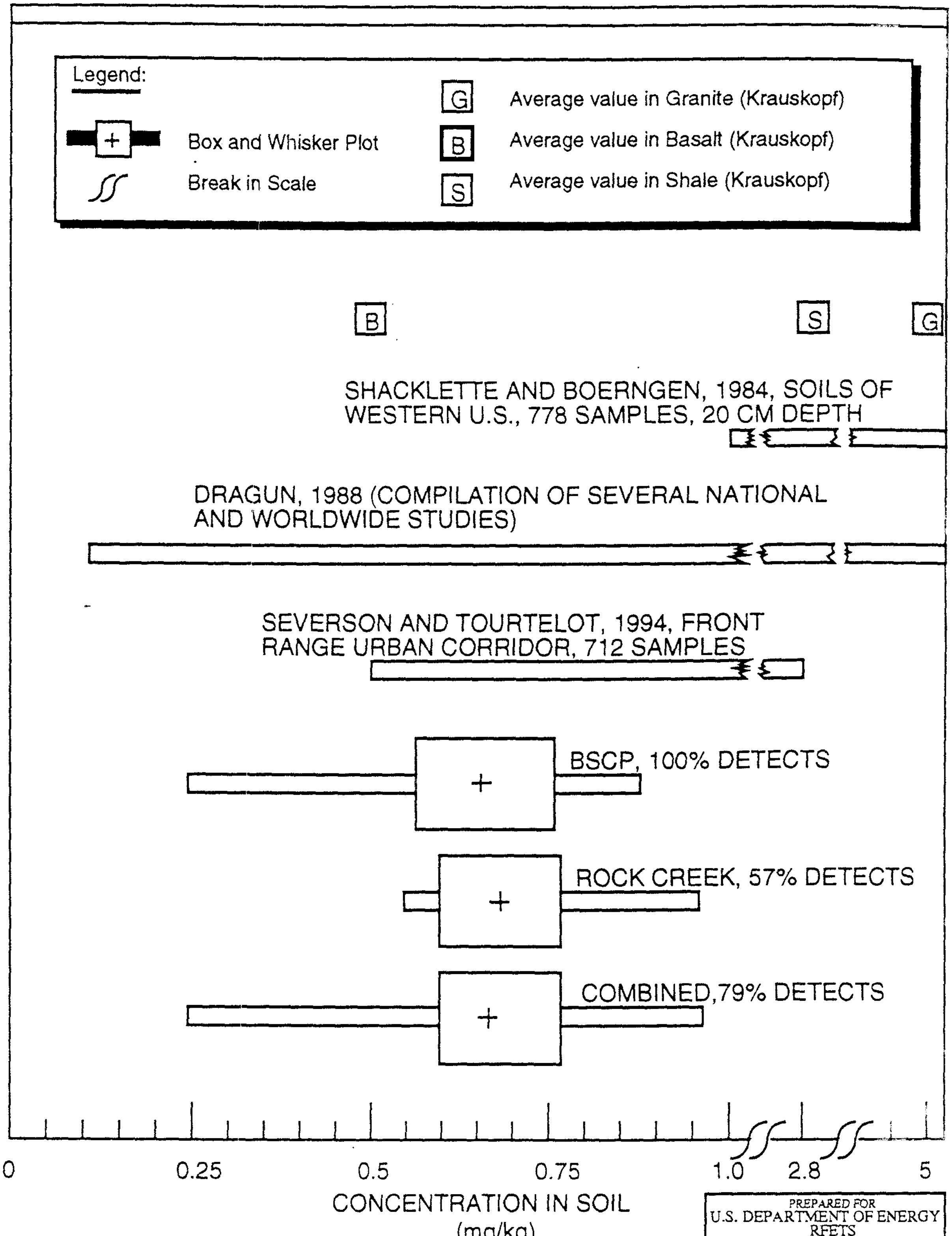

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FIGURE 4-5
BERYLLIUM

CADMIUM

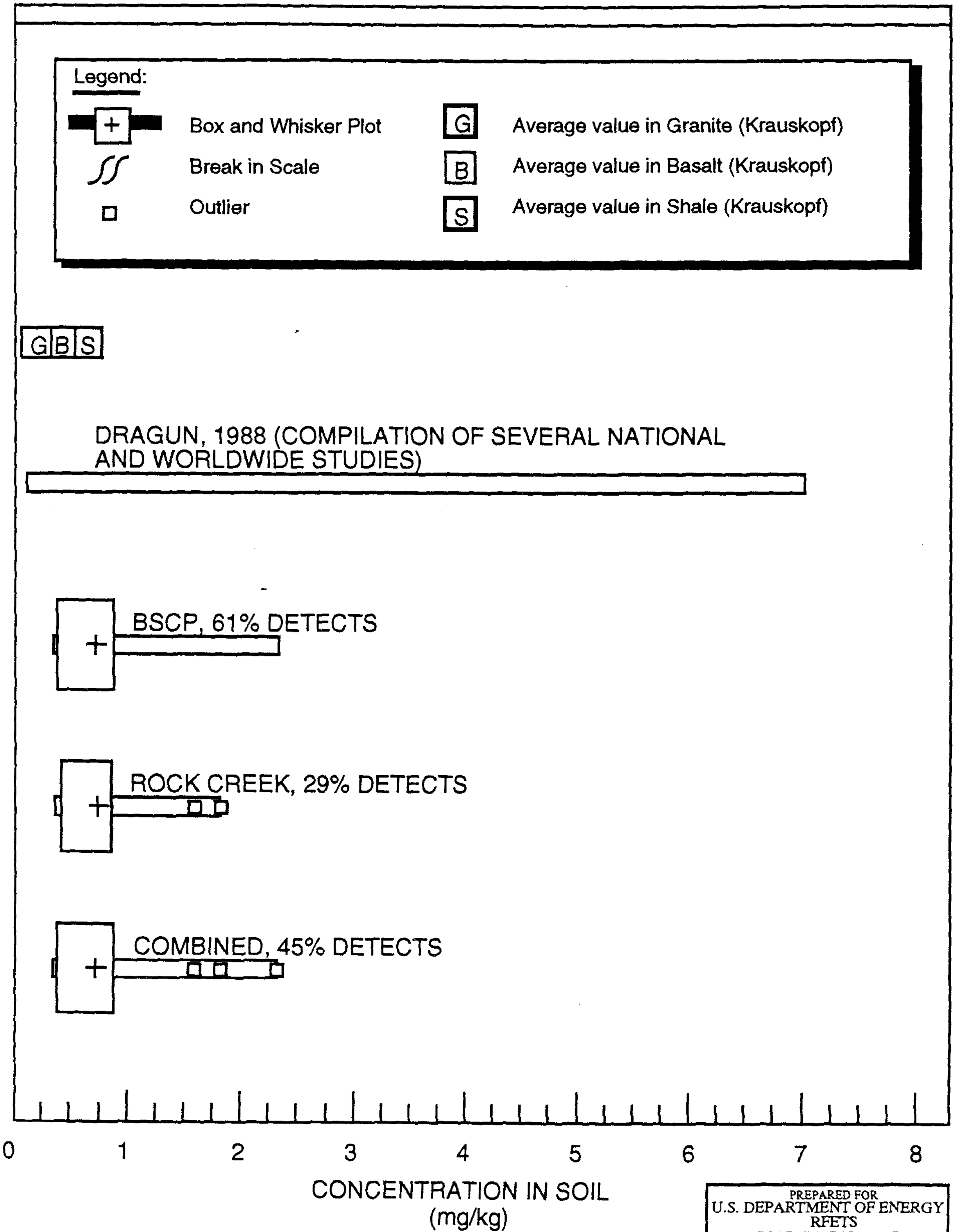

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FIGURE 4-6
CADMIUM

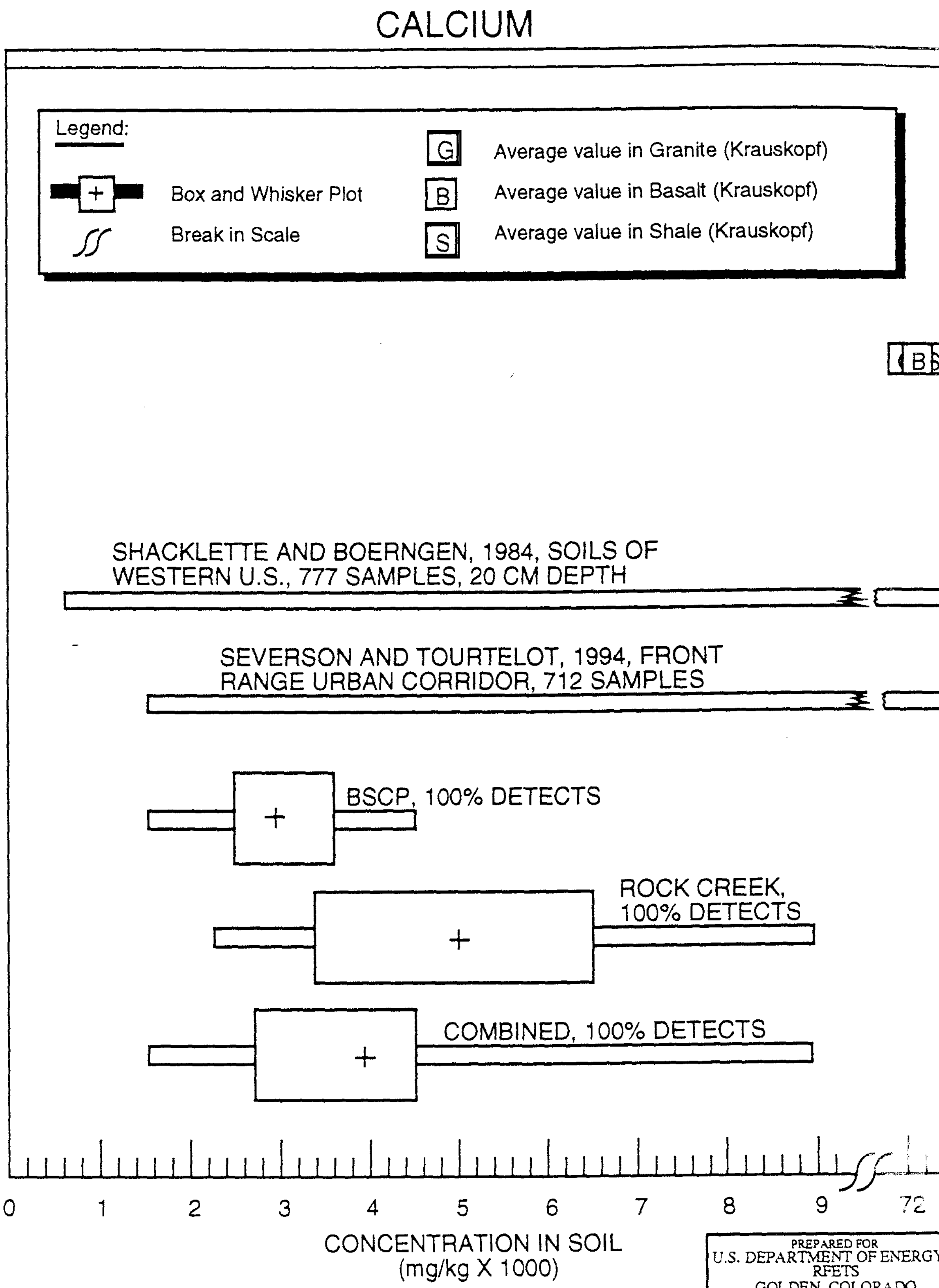

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FIGURE 4-7
CALCIUM

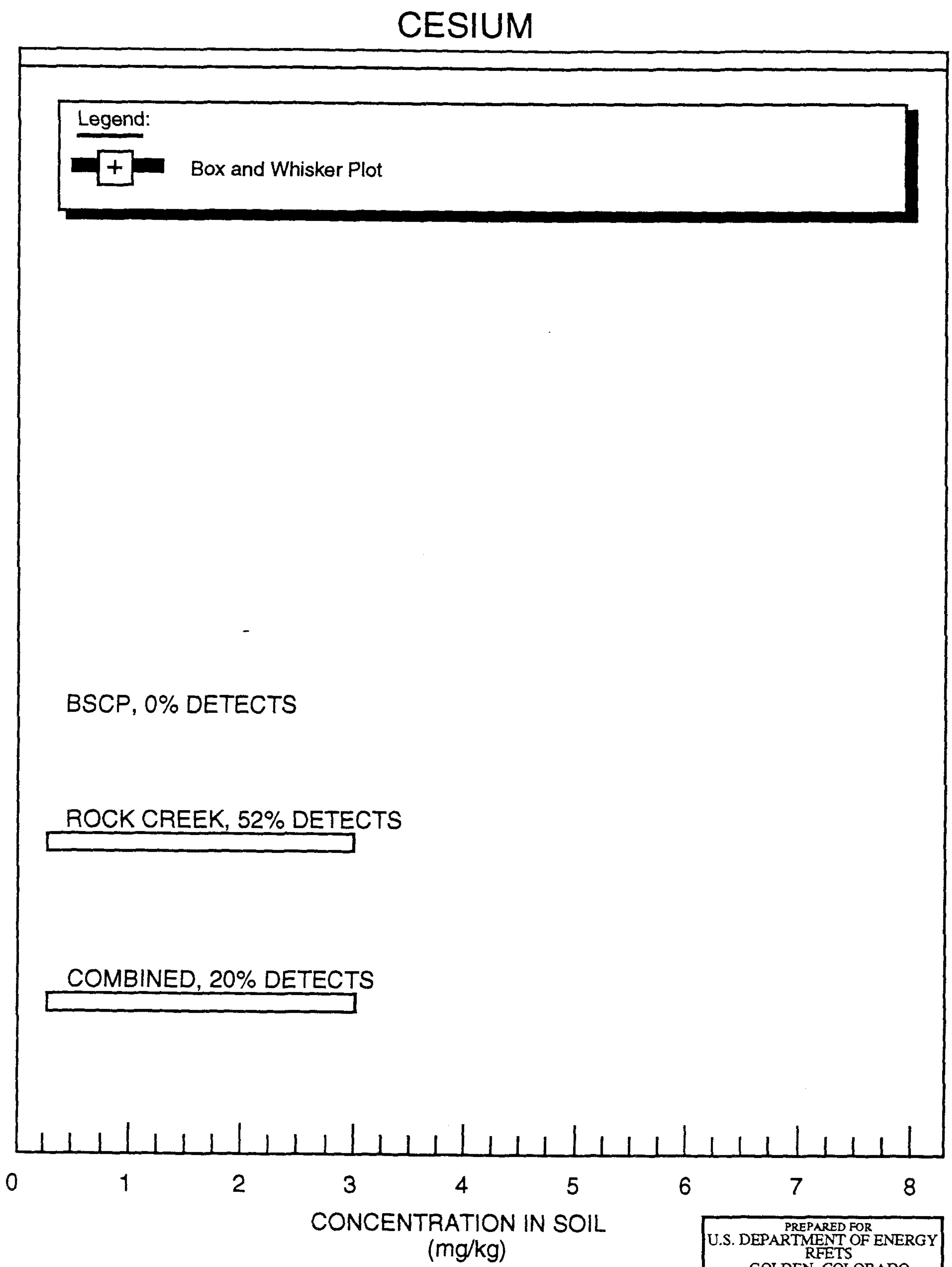

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FIGURE 4-8
CESIUM

CHROMIUM

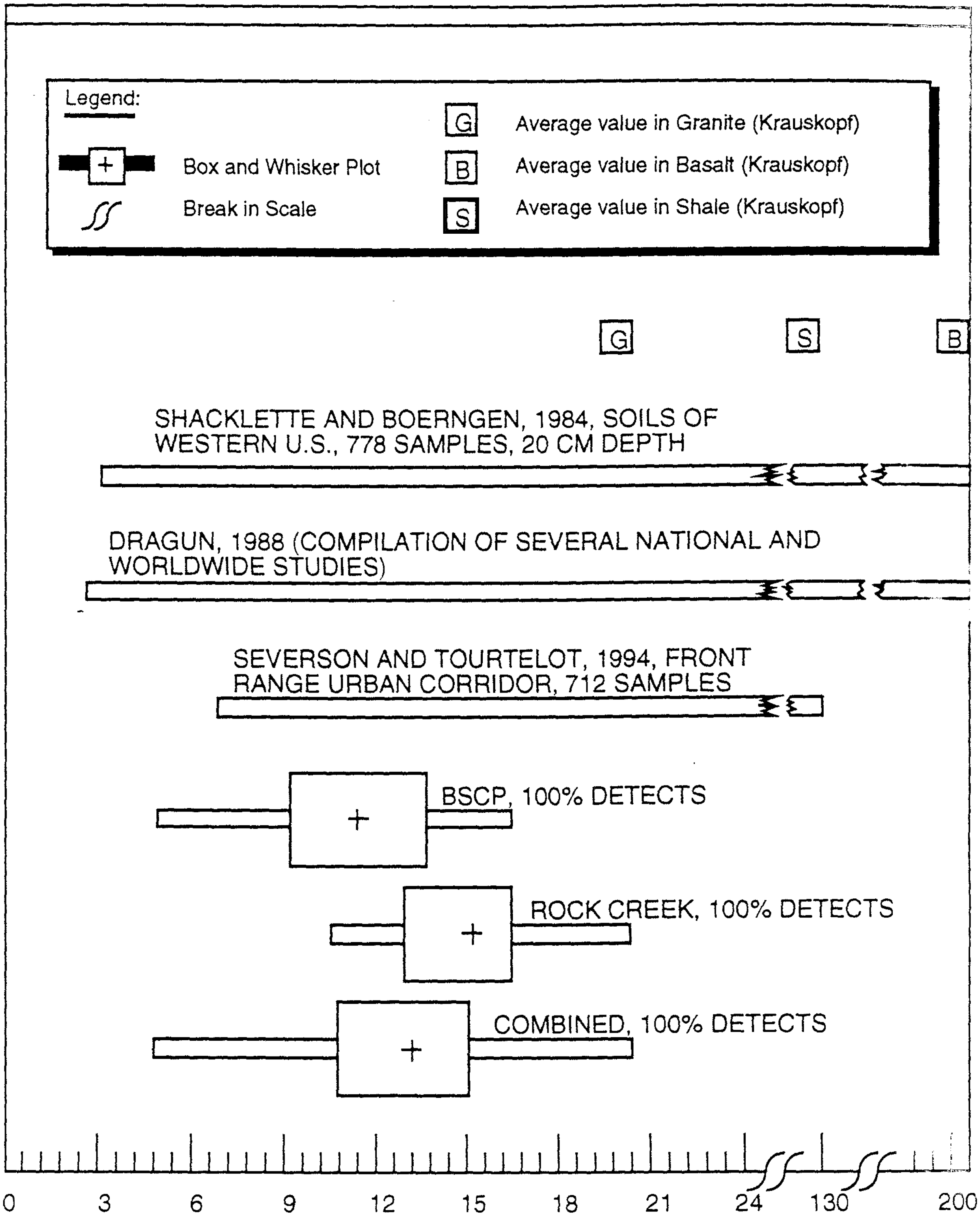

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FIGURE 4-9
CHROMIUM

COBALT

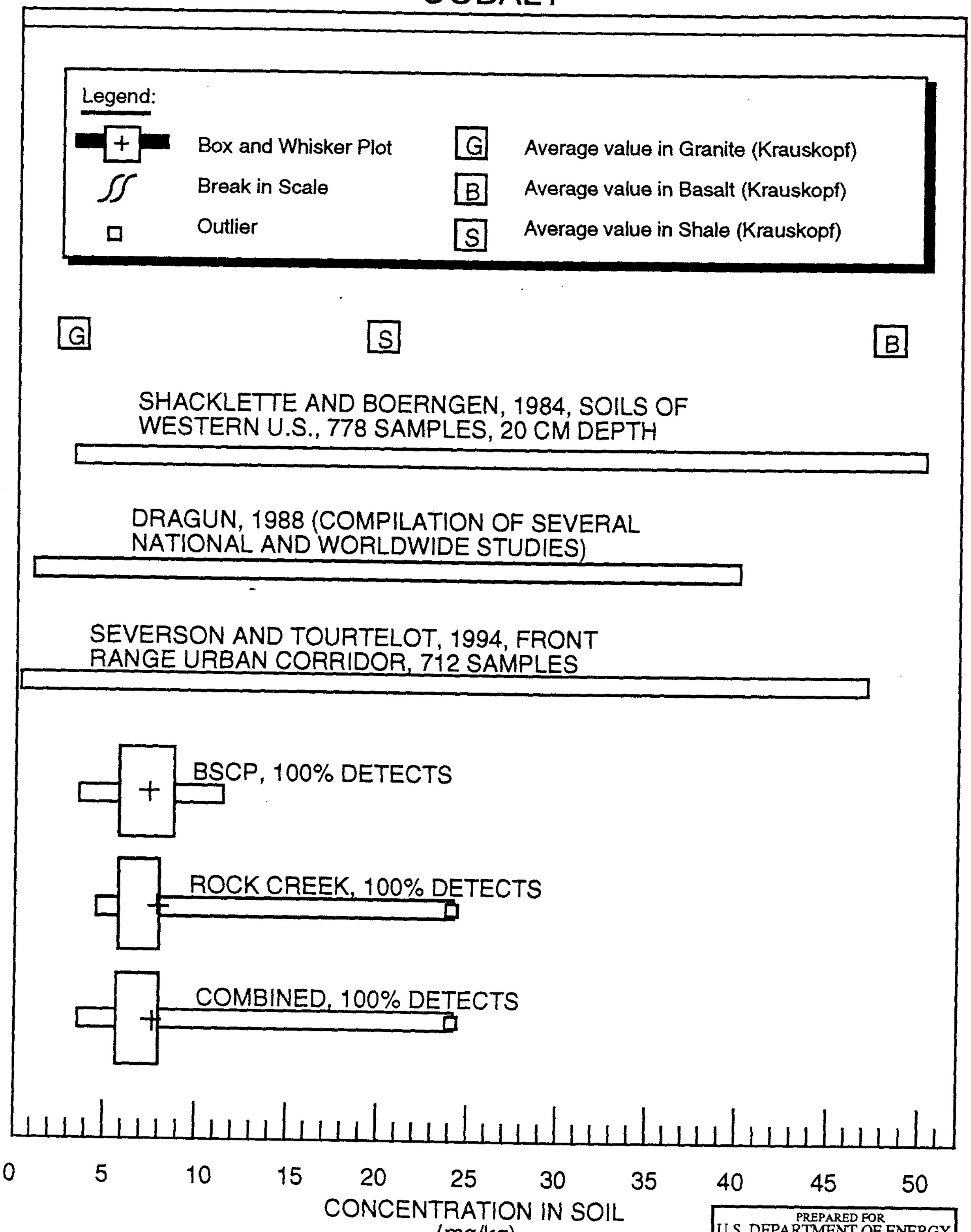

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FIGURE 4-10
COBALT

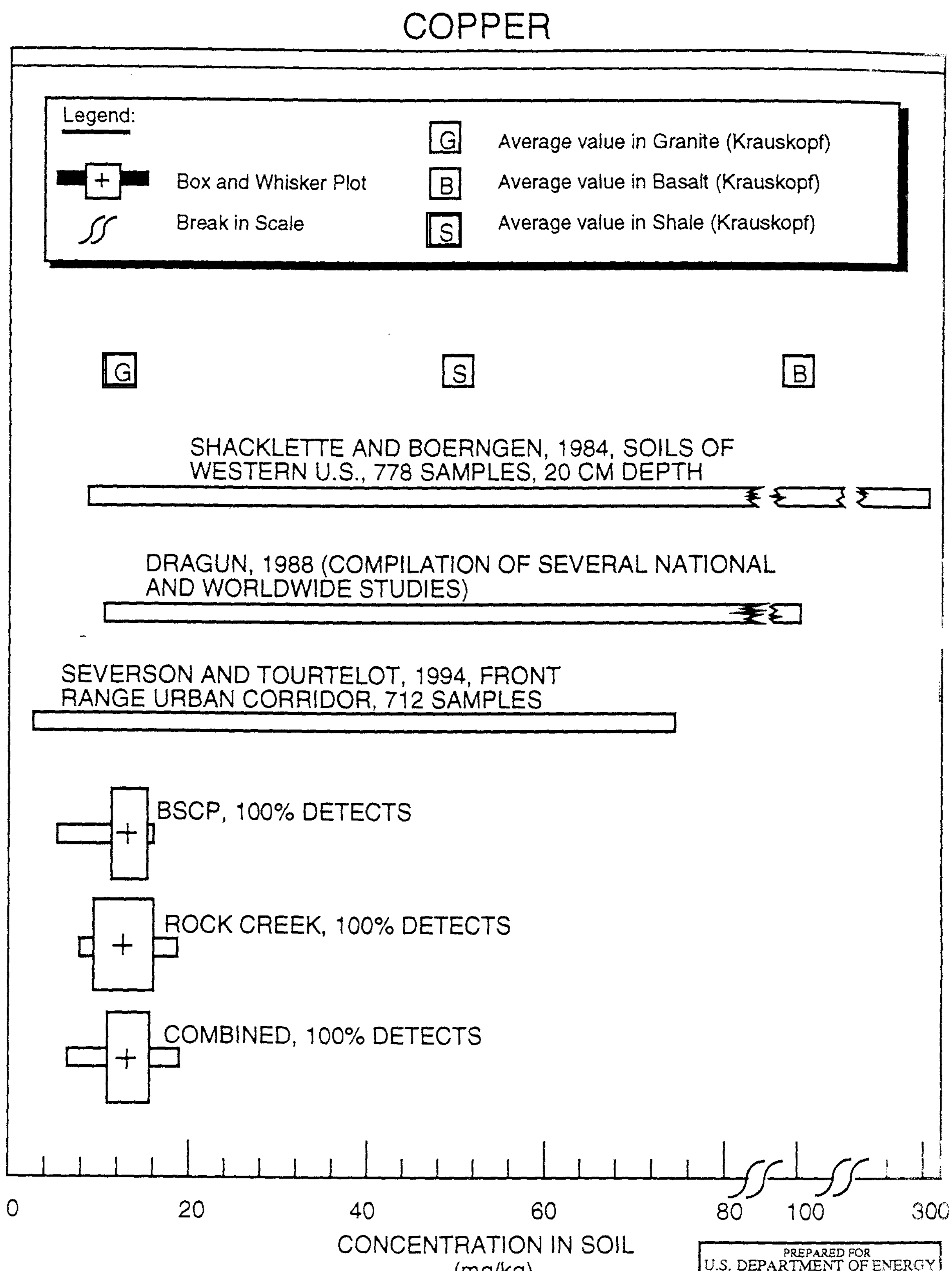

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FIGURE 4-11
COPPER

IRON

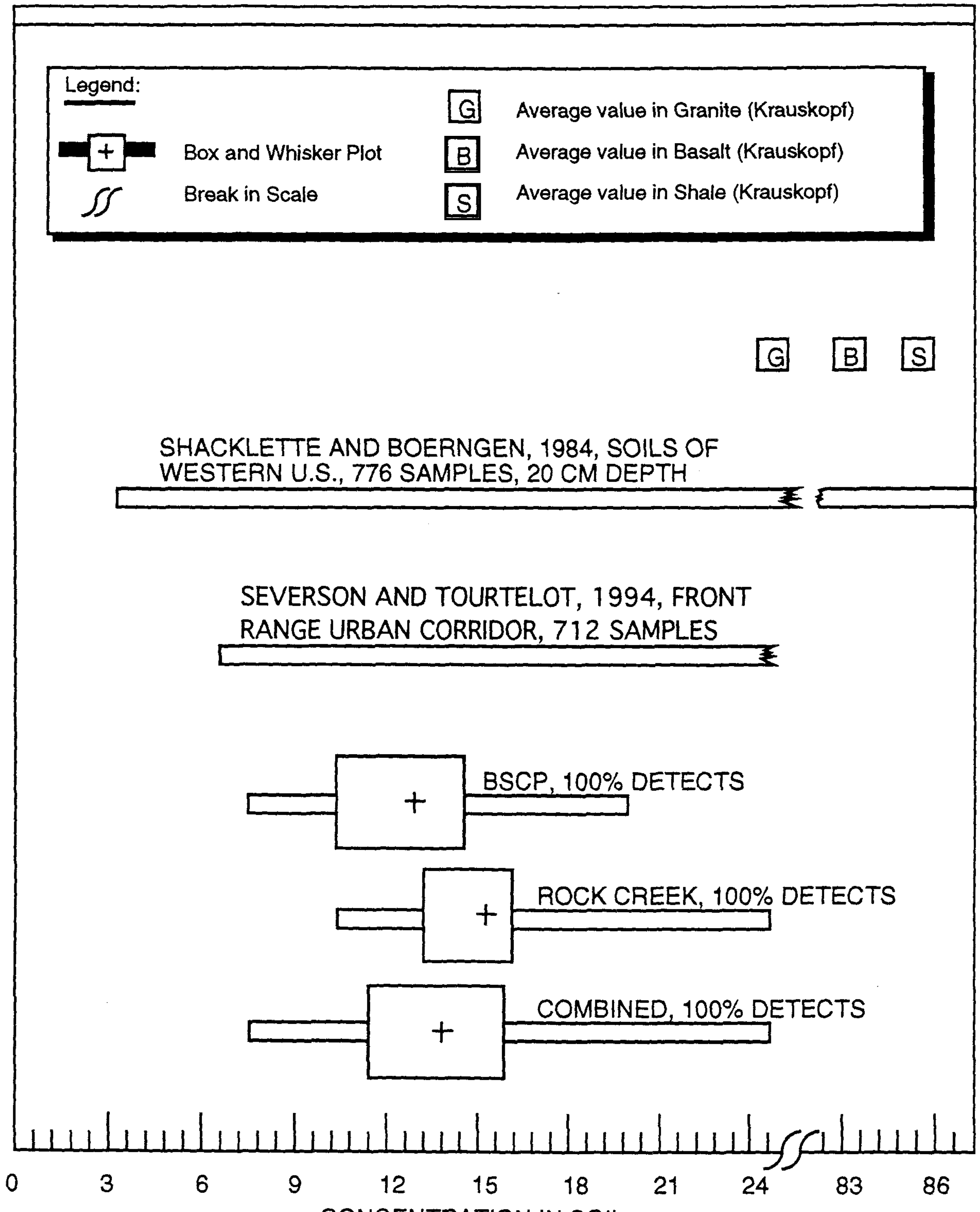

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FIGURE 4-12
IRON

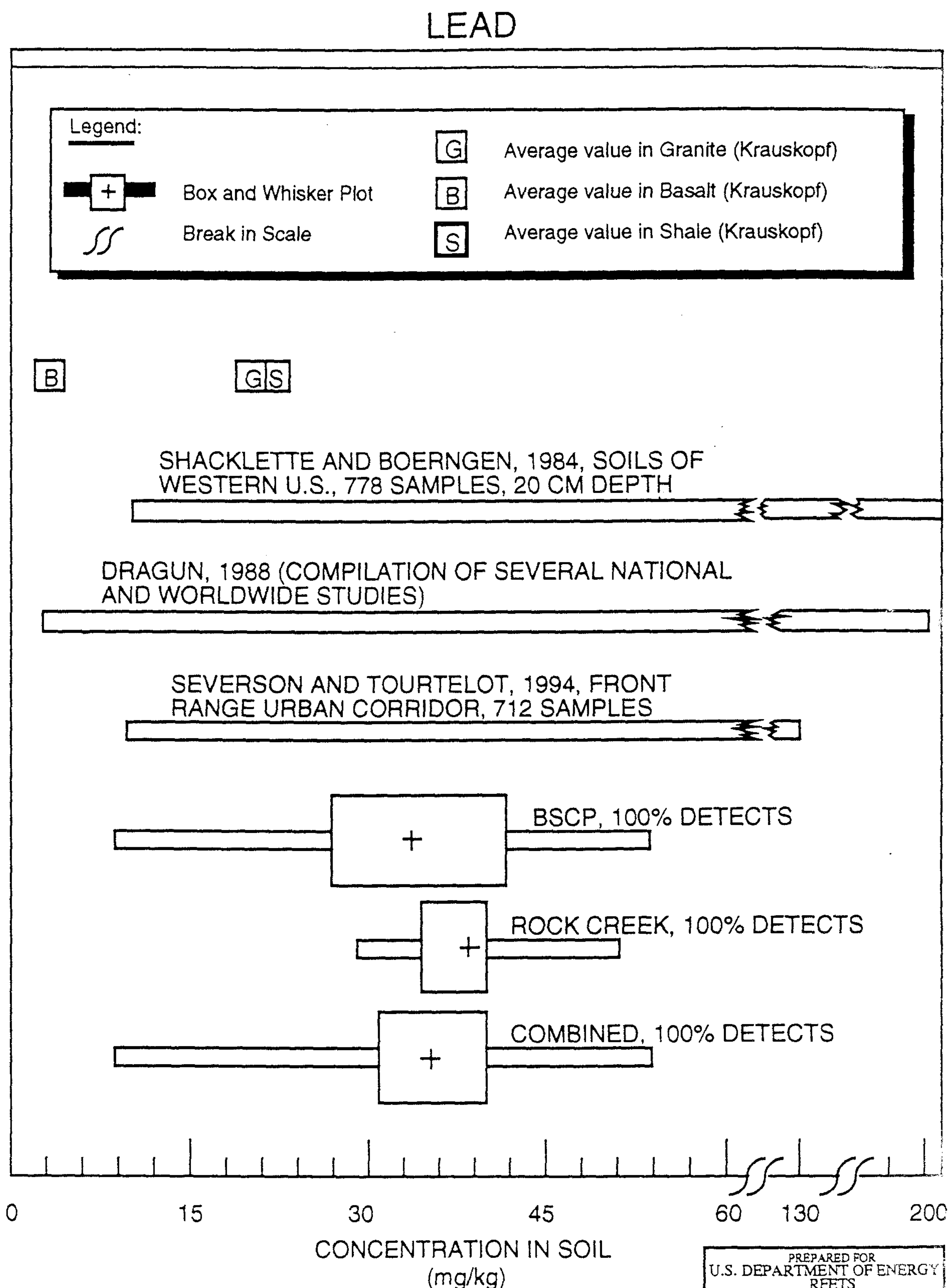

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FIGURE 4-13
LEAD

LITHIUM

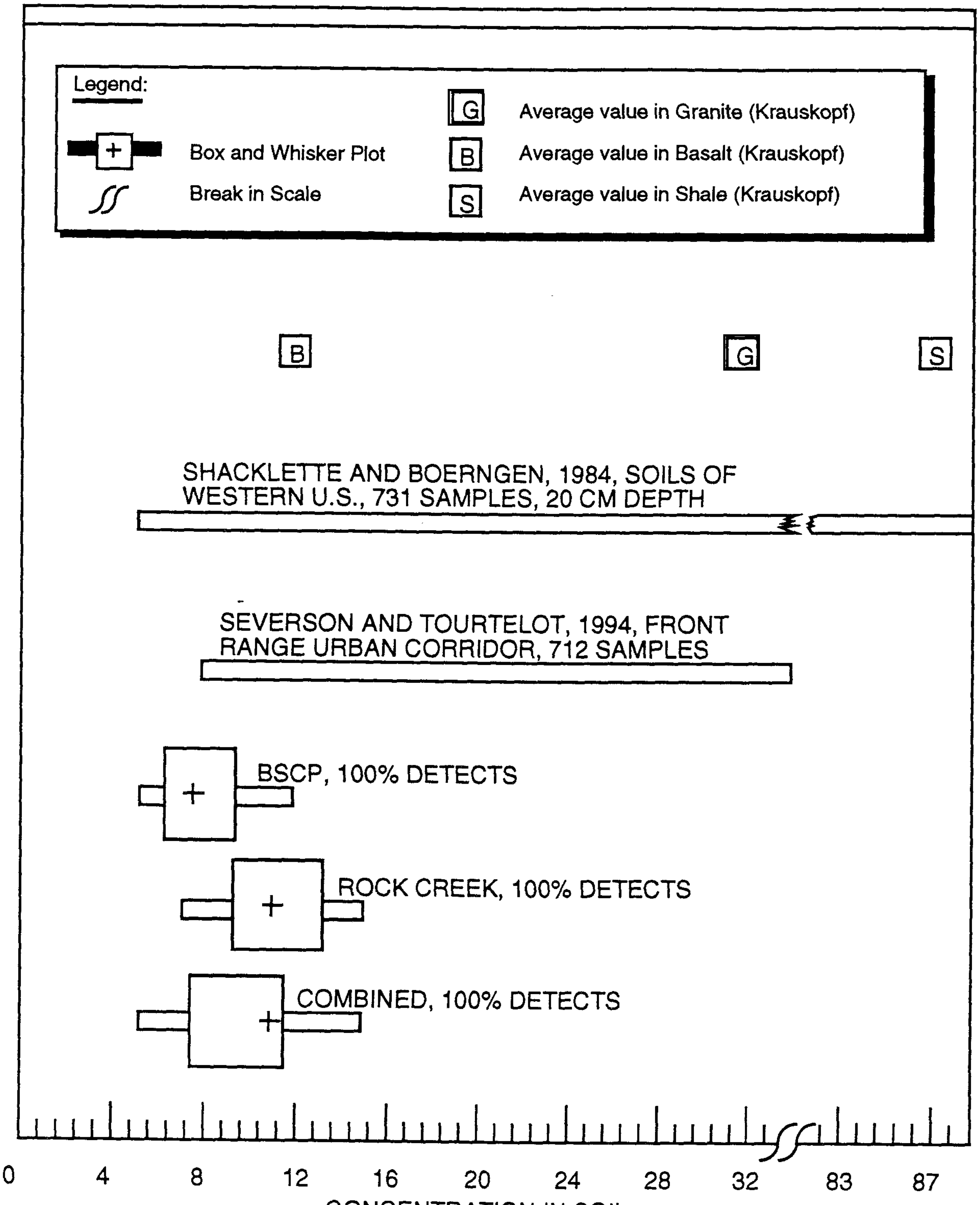

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FIGURE 4-14
LITHIUM

MAGNESIUM

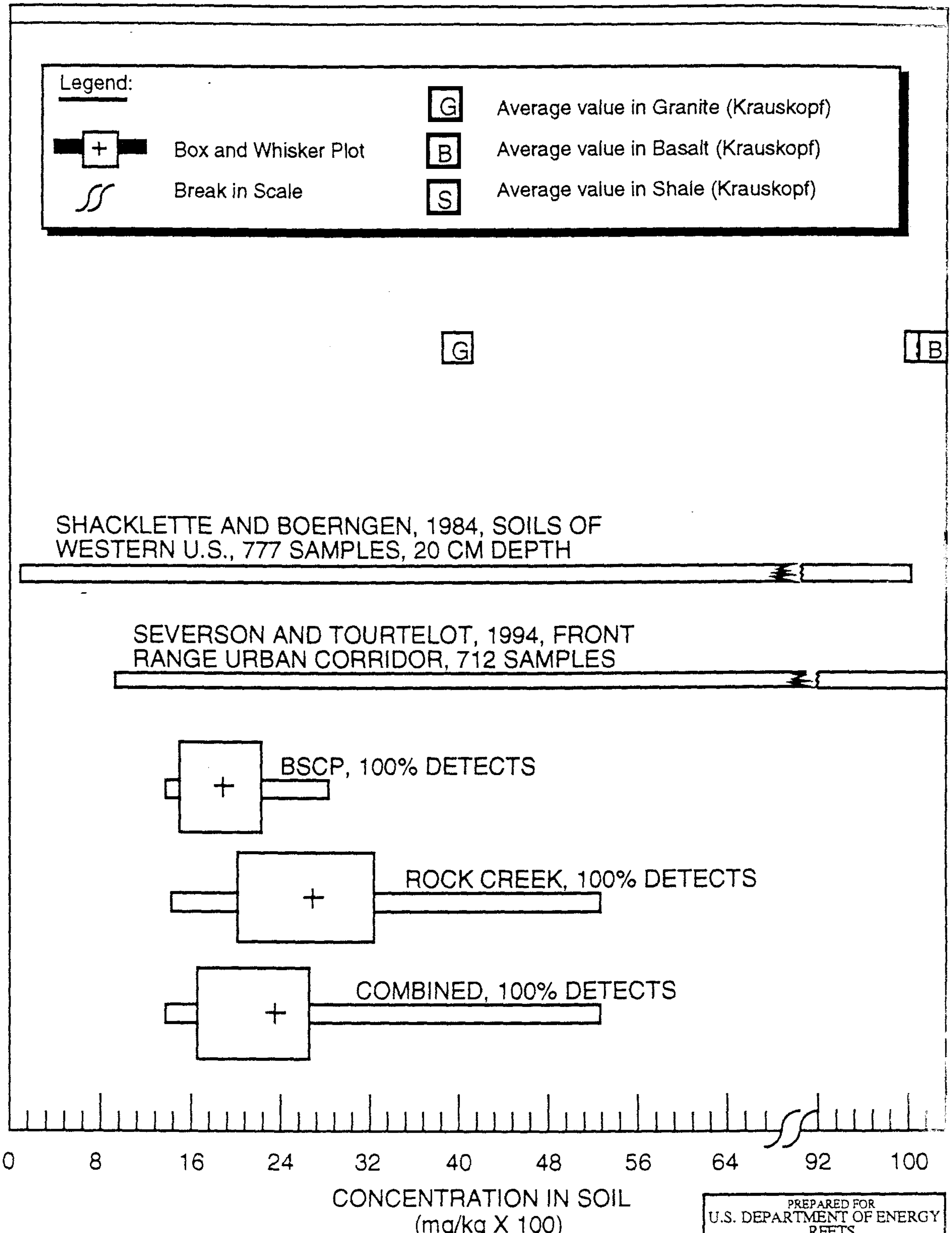

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FIGURE 4-15
MAGNESIUM

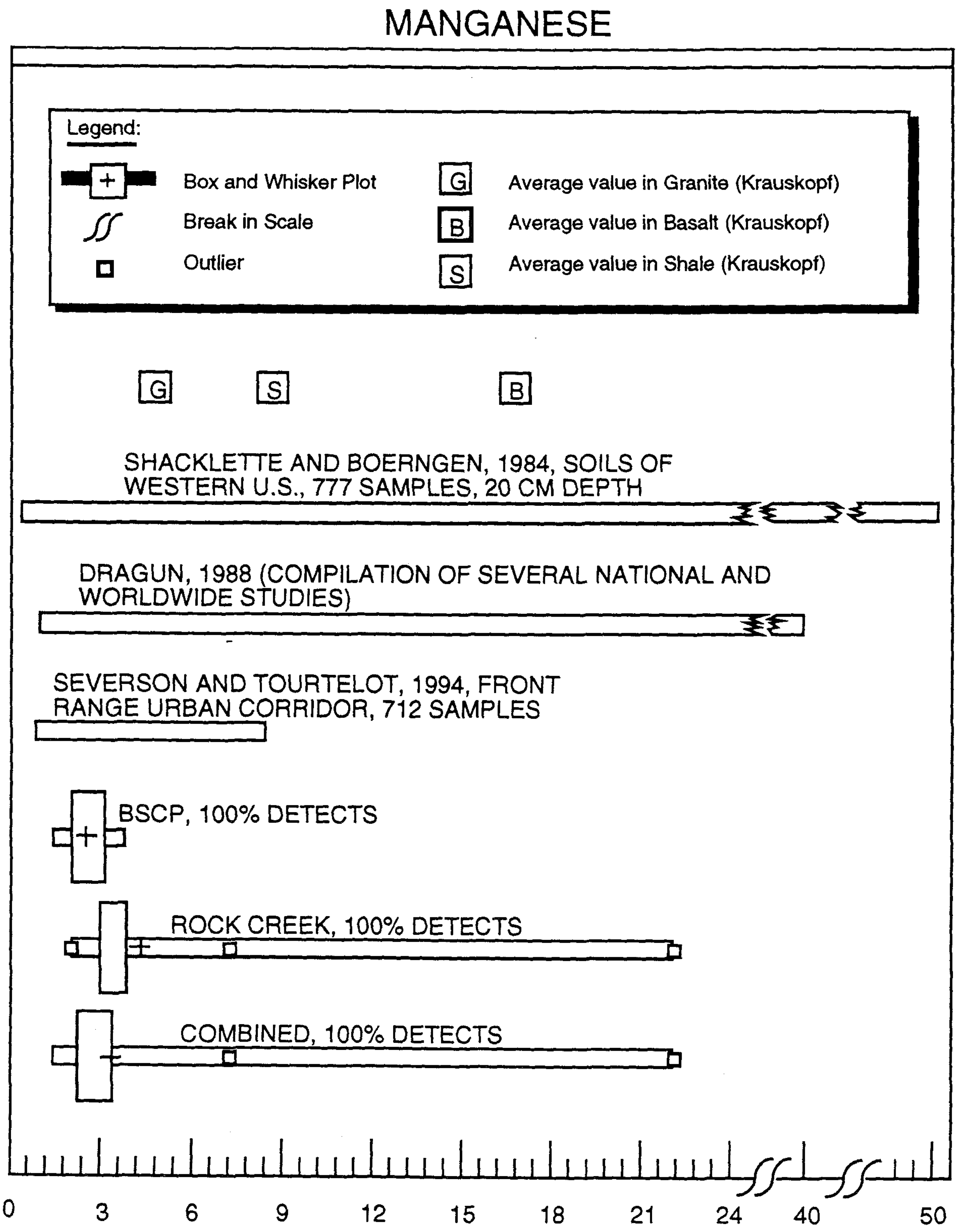

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FIGURE 4-16
MANGANESE

MERCURY

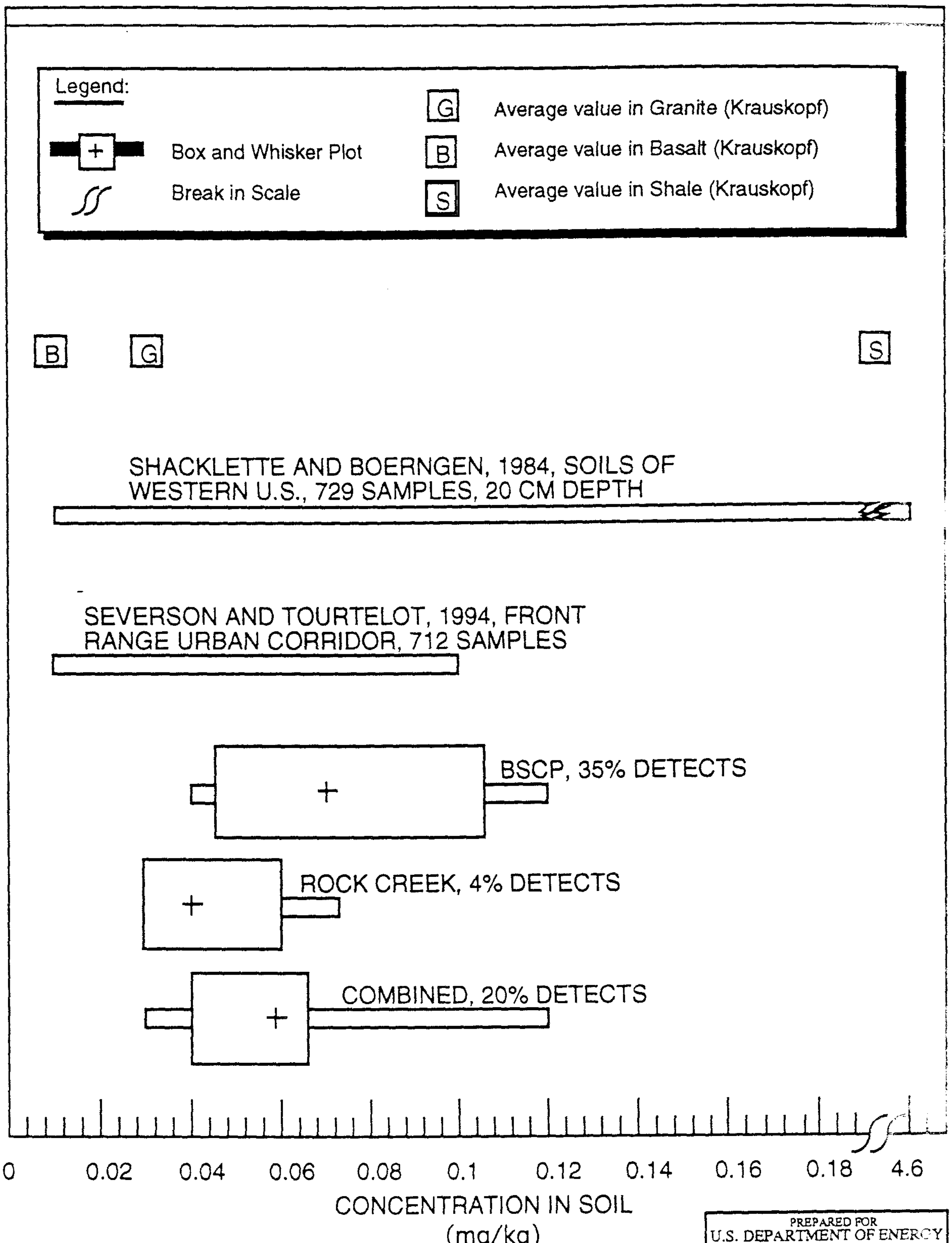

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FIGURE 4-17
MERCURY

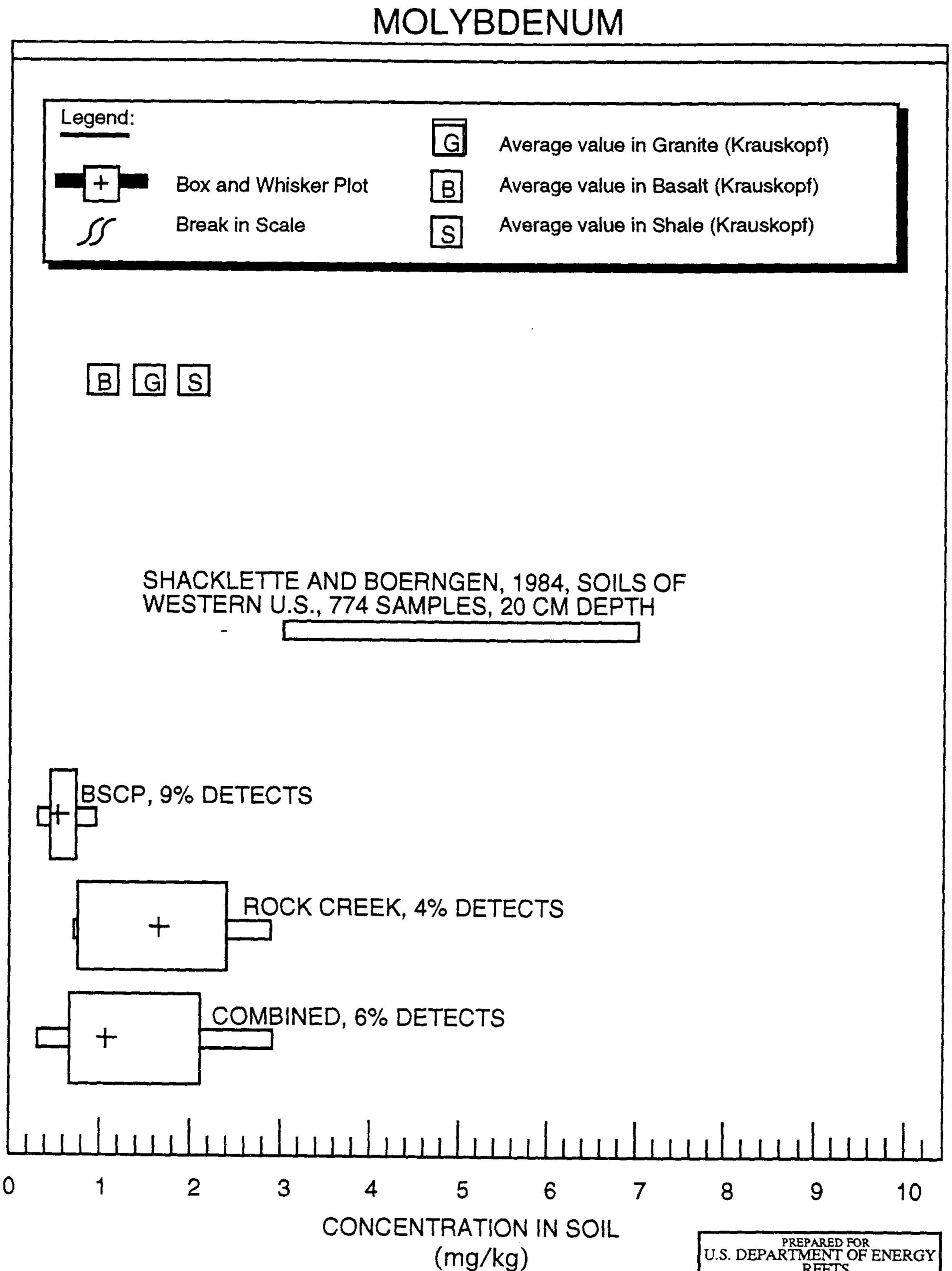

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FIGURE 4-18
MOLYBDENUM

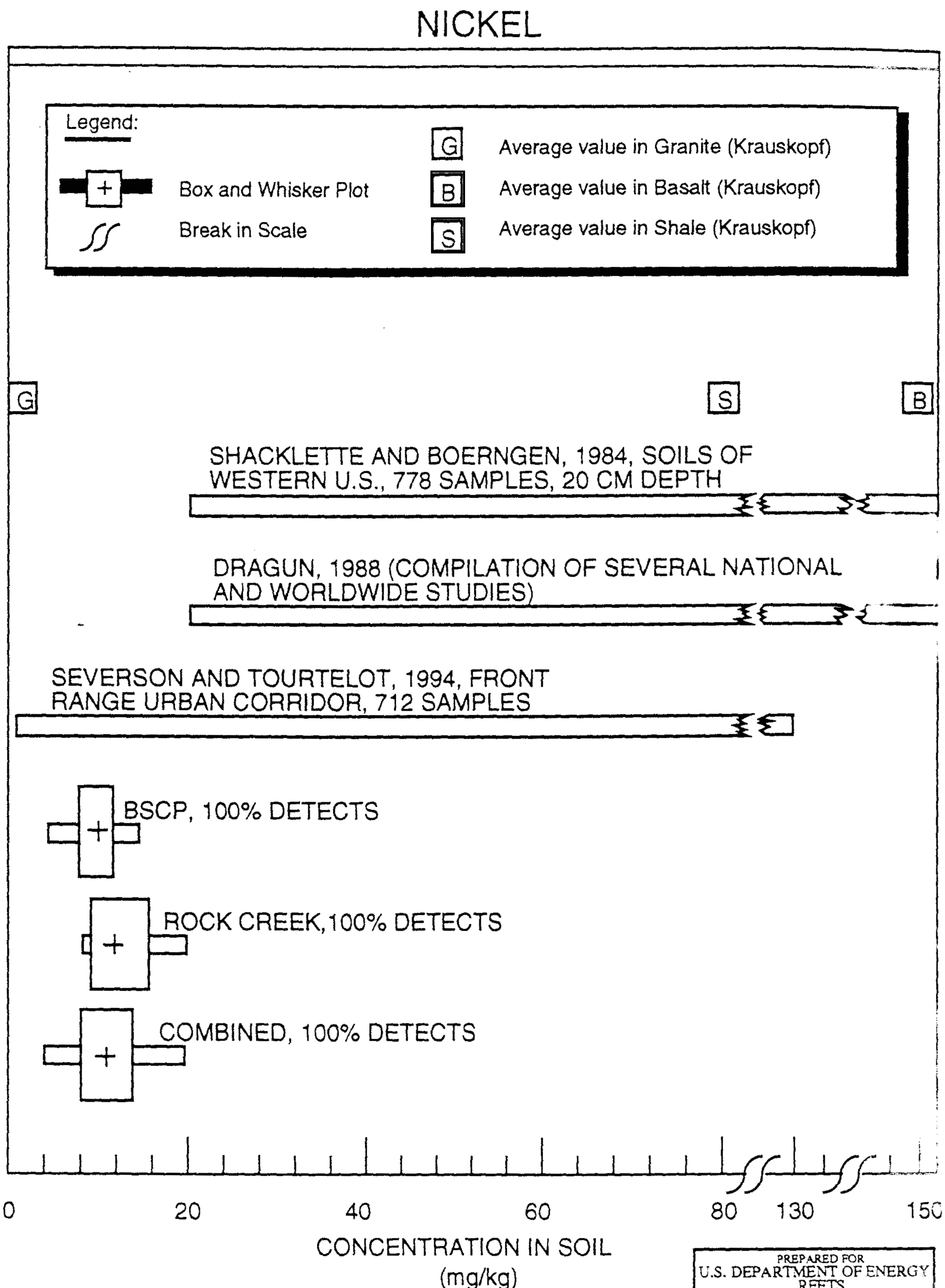

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FIGURE 4-19
NICKEL

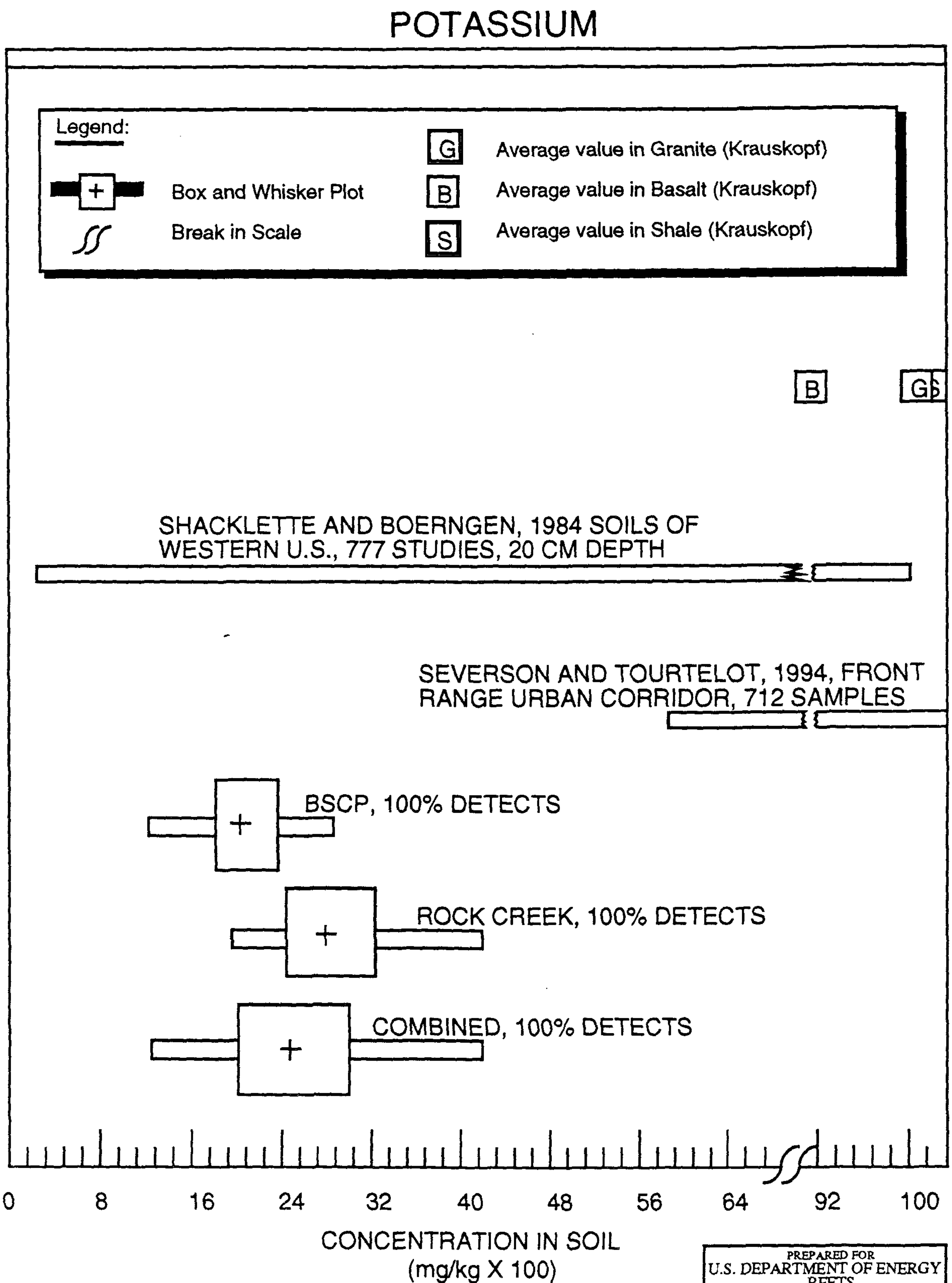

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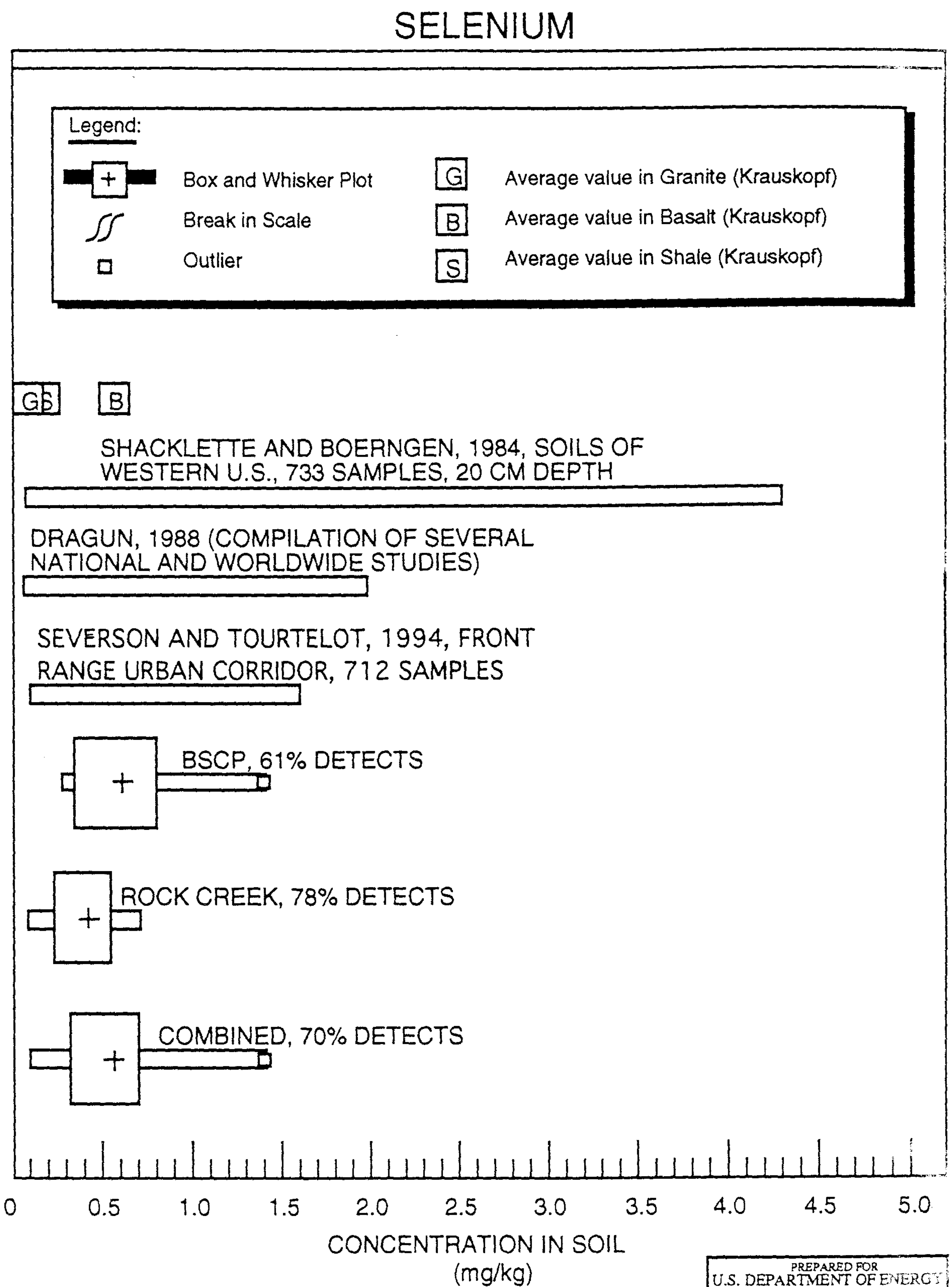
FIGURE 4-20
POTASSIUM



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GOLDEN, COLORADO

FIGURE 4-21
SELENIUM

SILICON

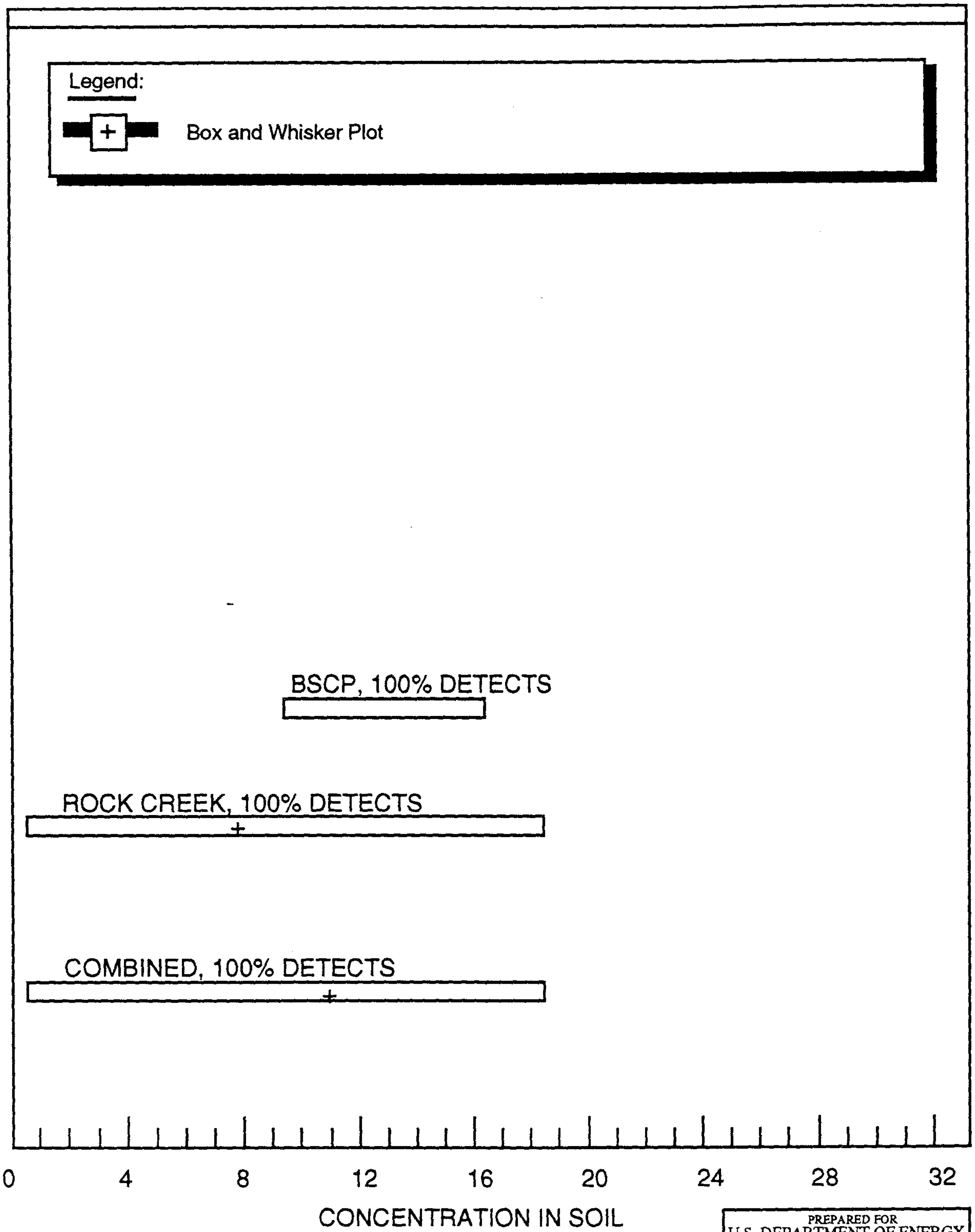

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FIGURE 4-22
SILICON

SILVER

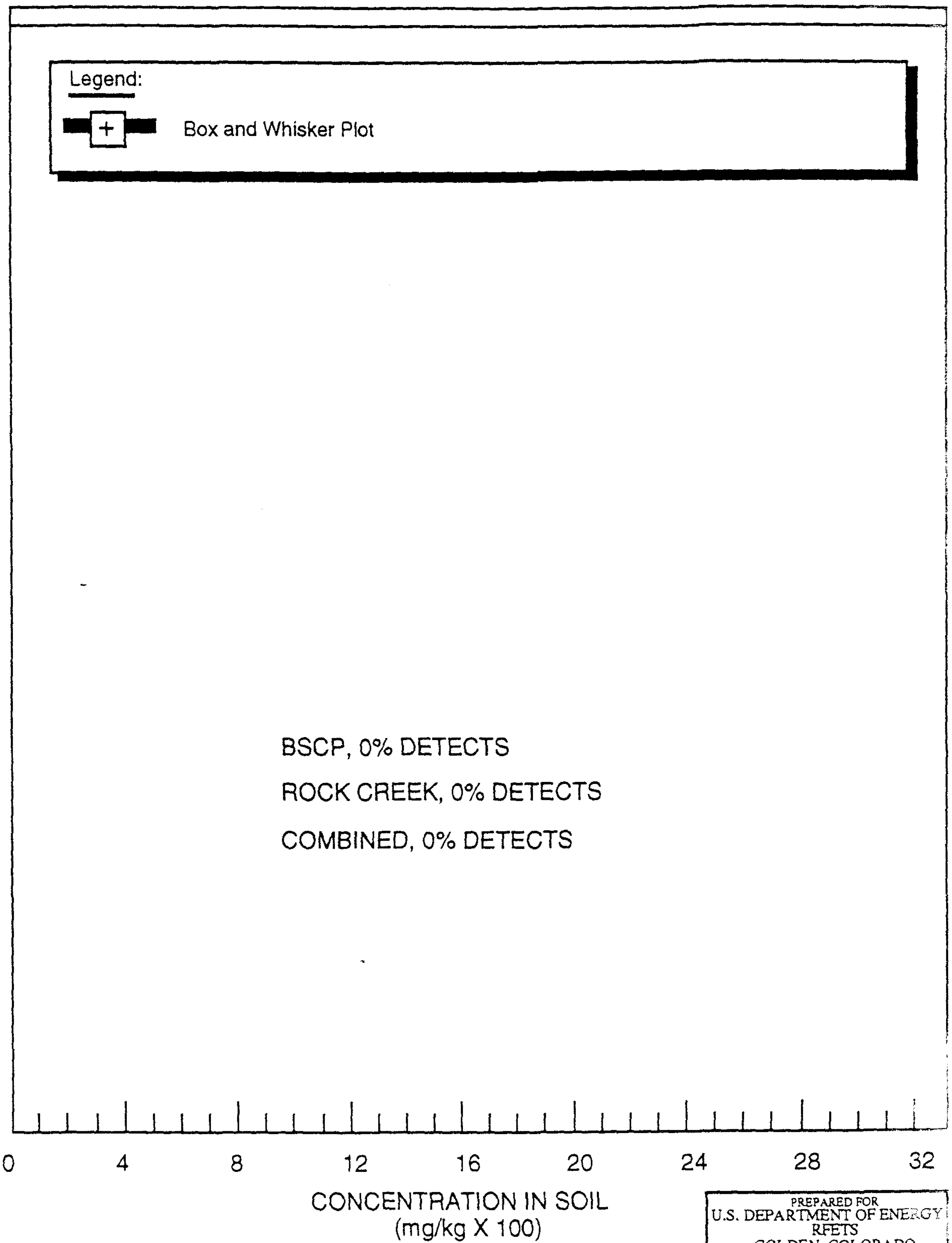

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FIGURE 4-23
SILVER

SODIUM

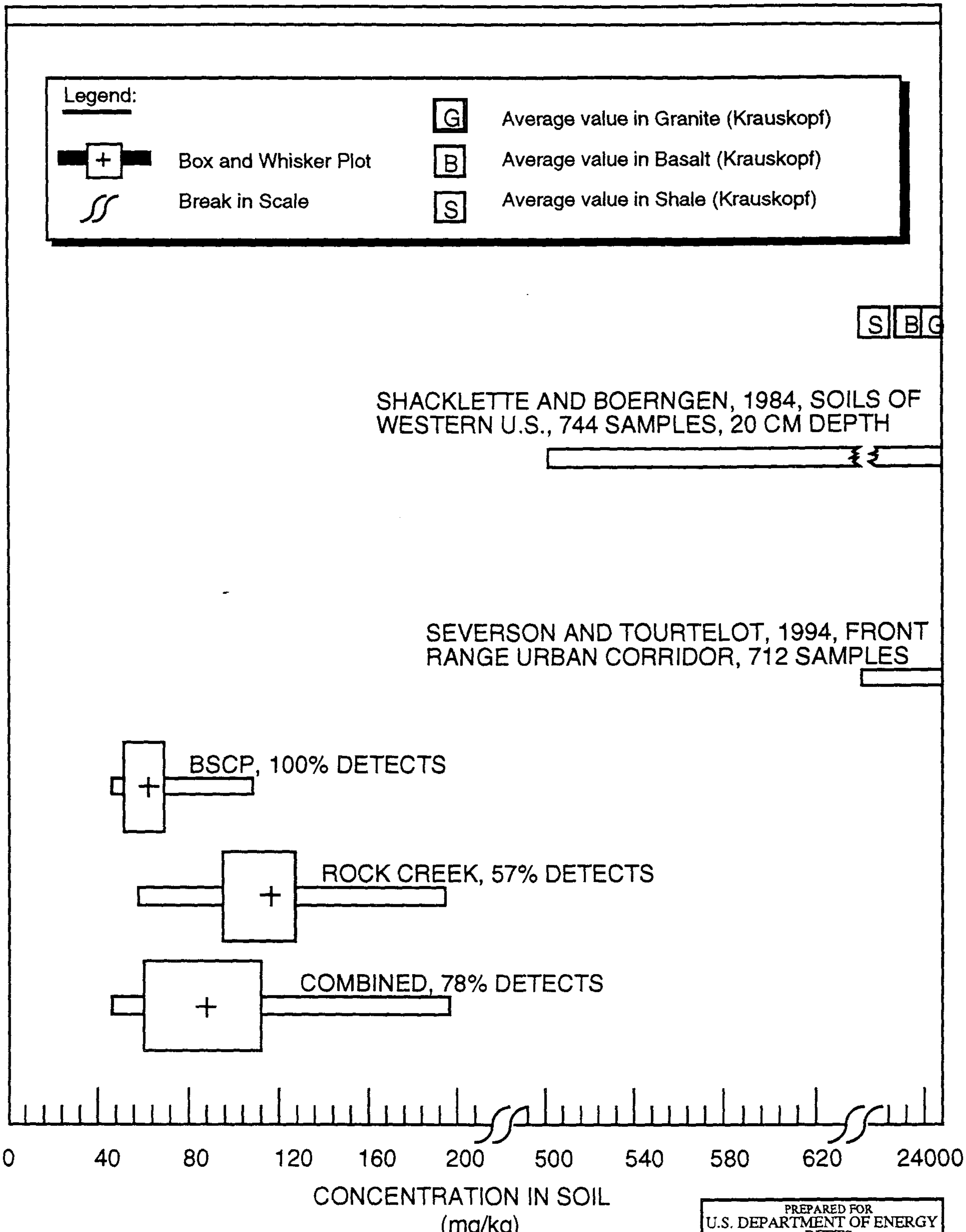

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FIGURE 4-24
SODIUM

STRONTIUM

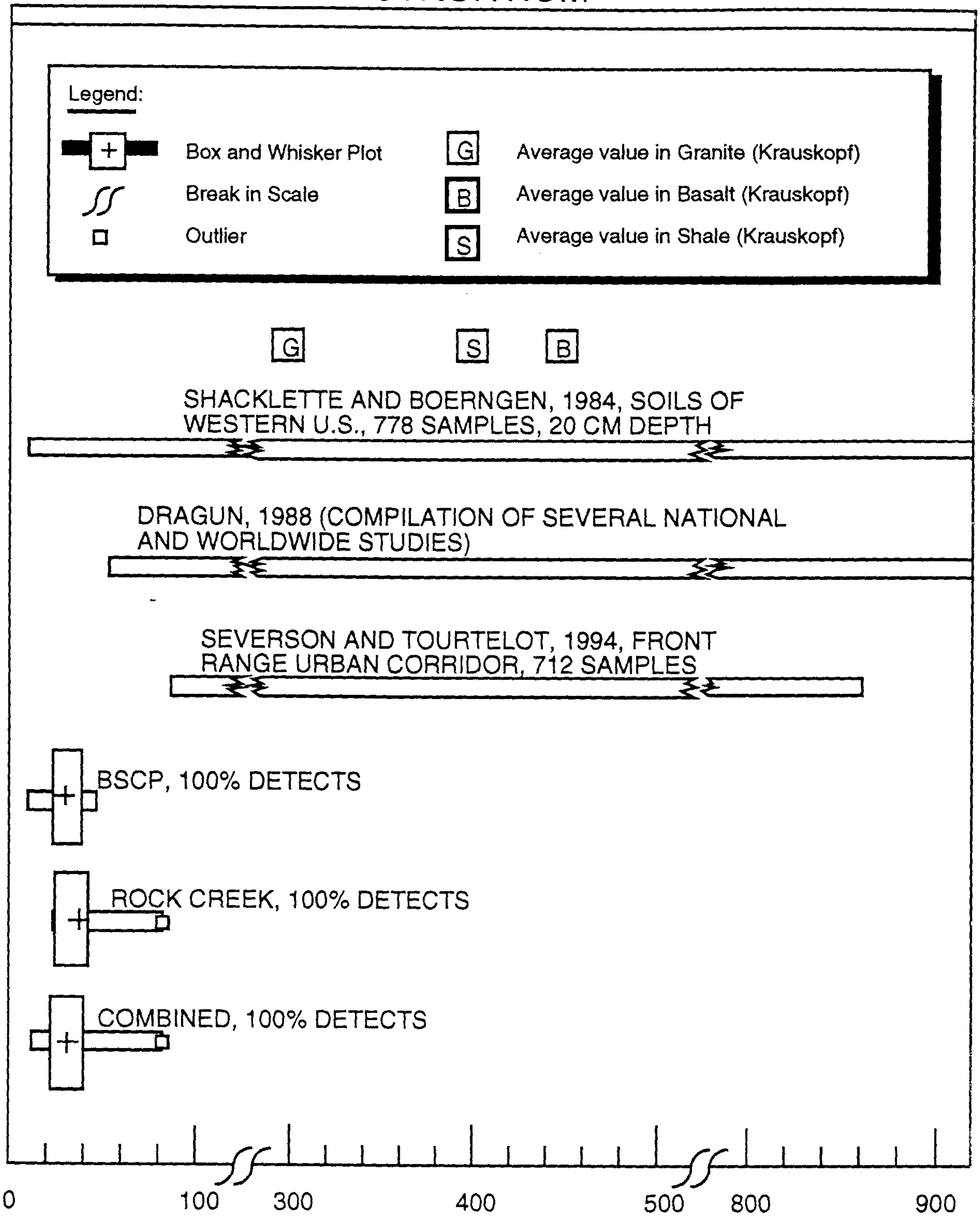

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FIGURE 4-25
STRONTIUM

THALLIUM

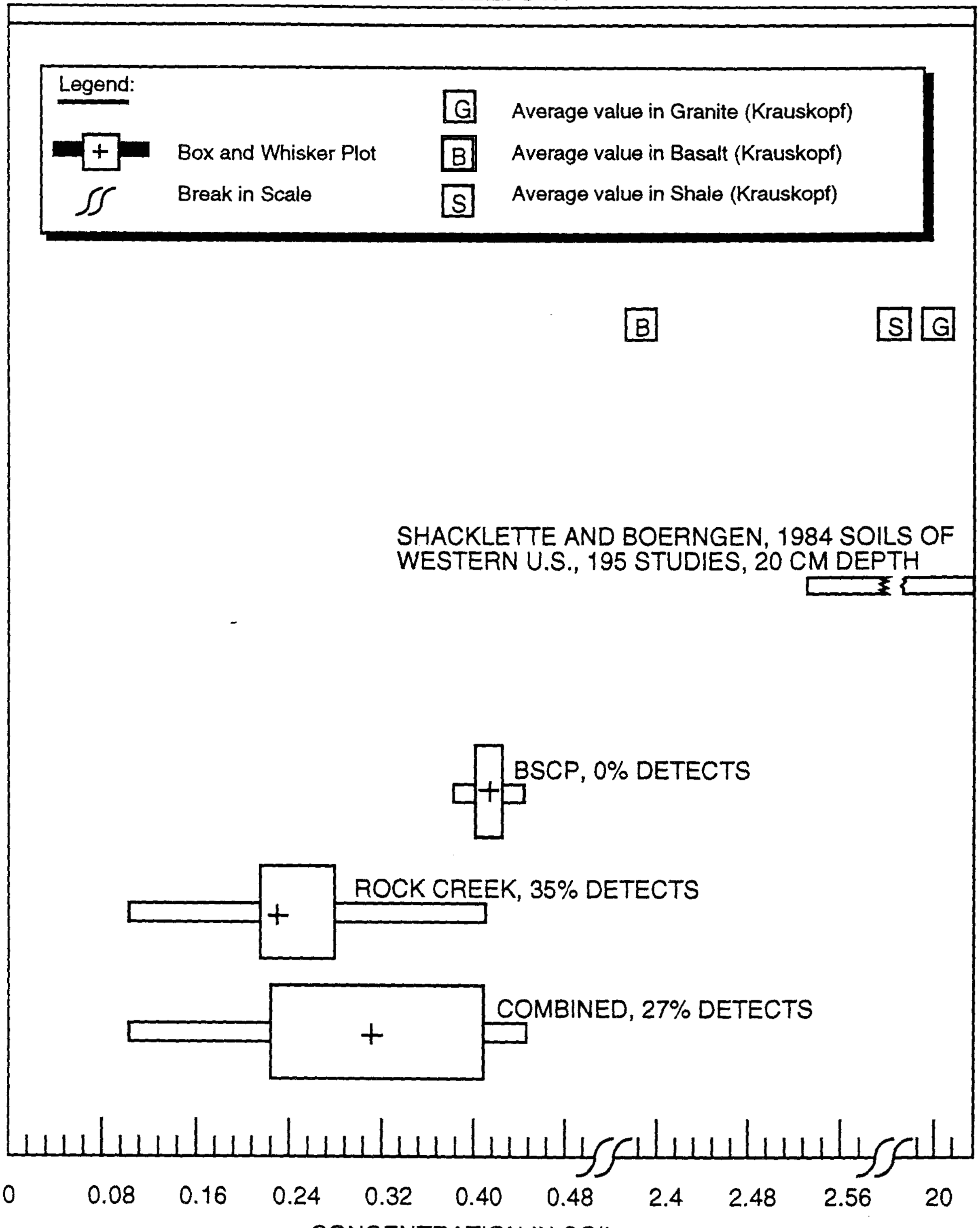

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FIGURE 4-26
THALLIUM

TIN

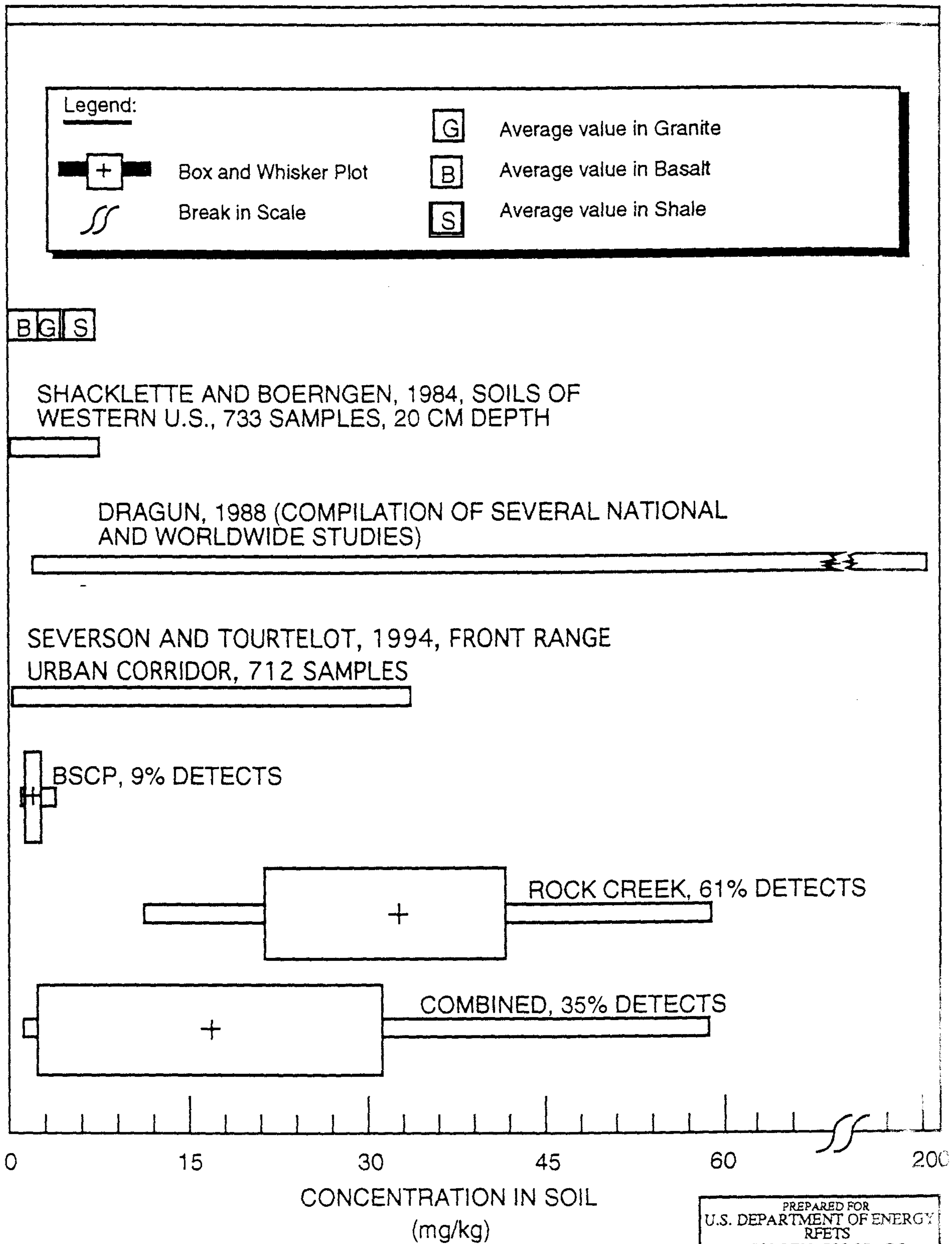

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FIGURE 4-27
TIN

VANADIUM

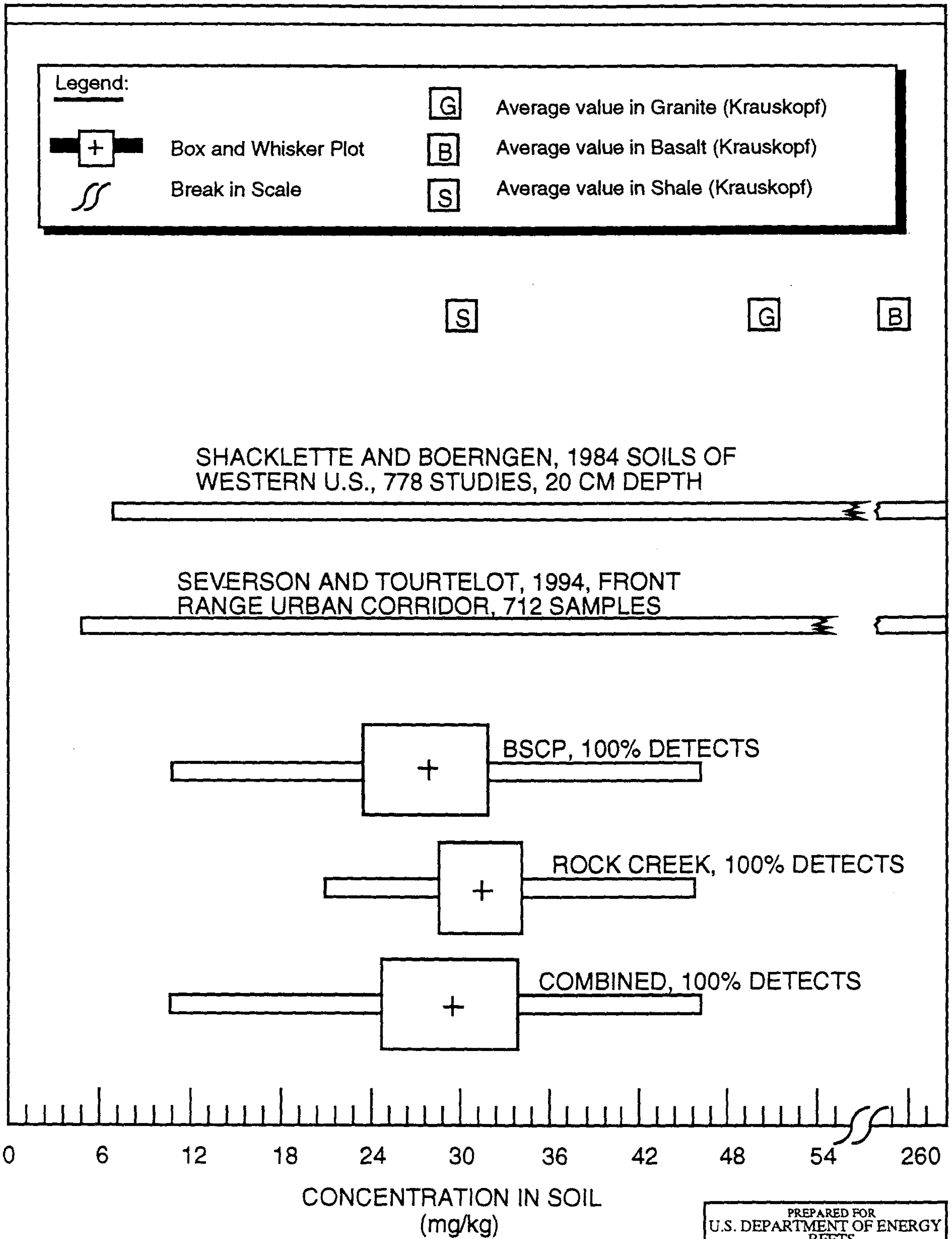

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FIGURE 4-28
VANADIUM

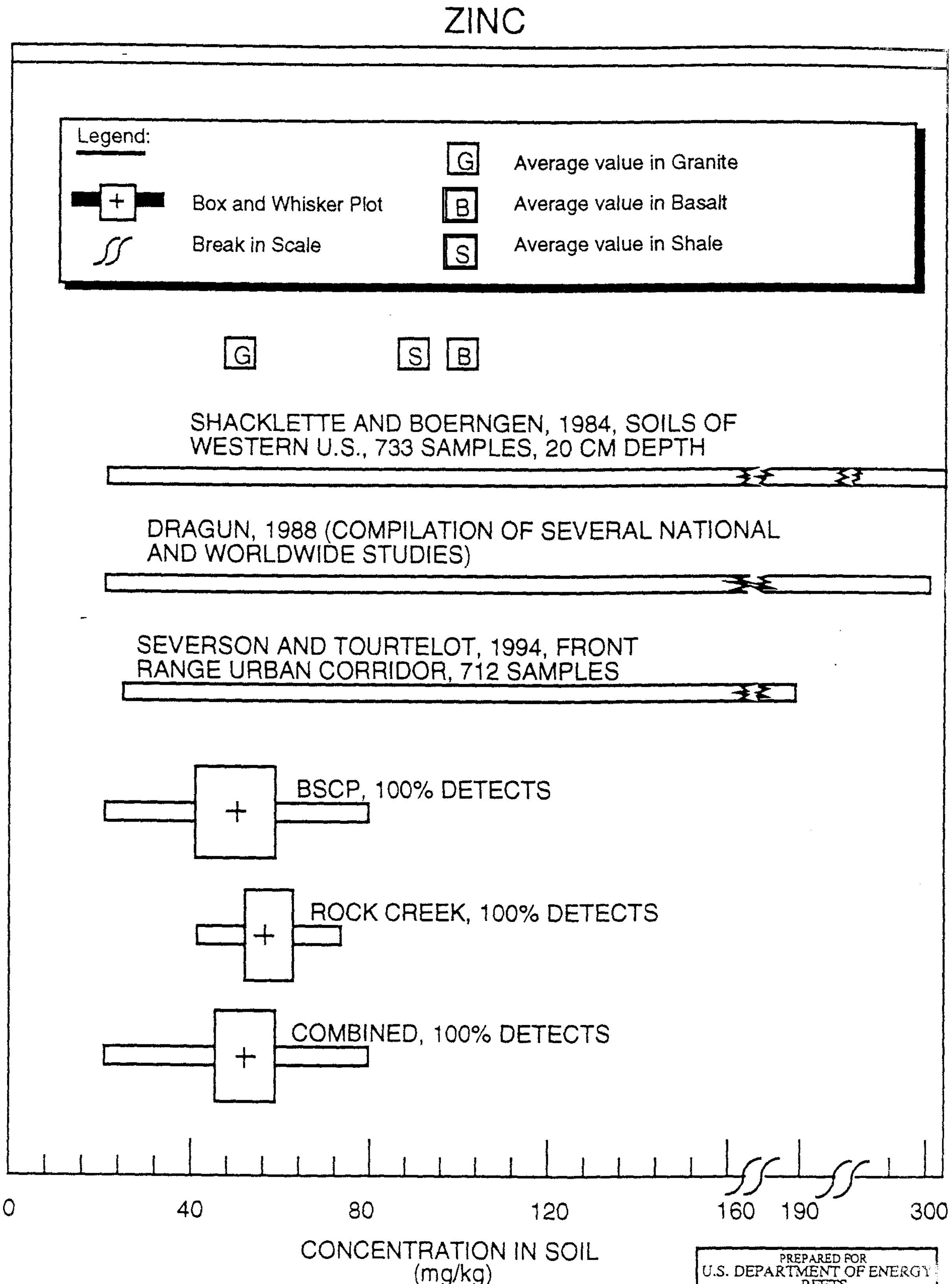

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FIGURE 4-29
ZINC

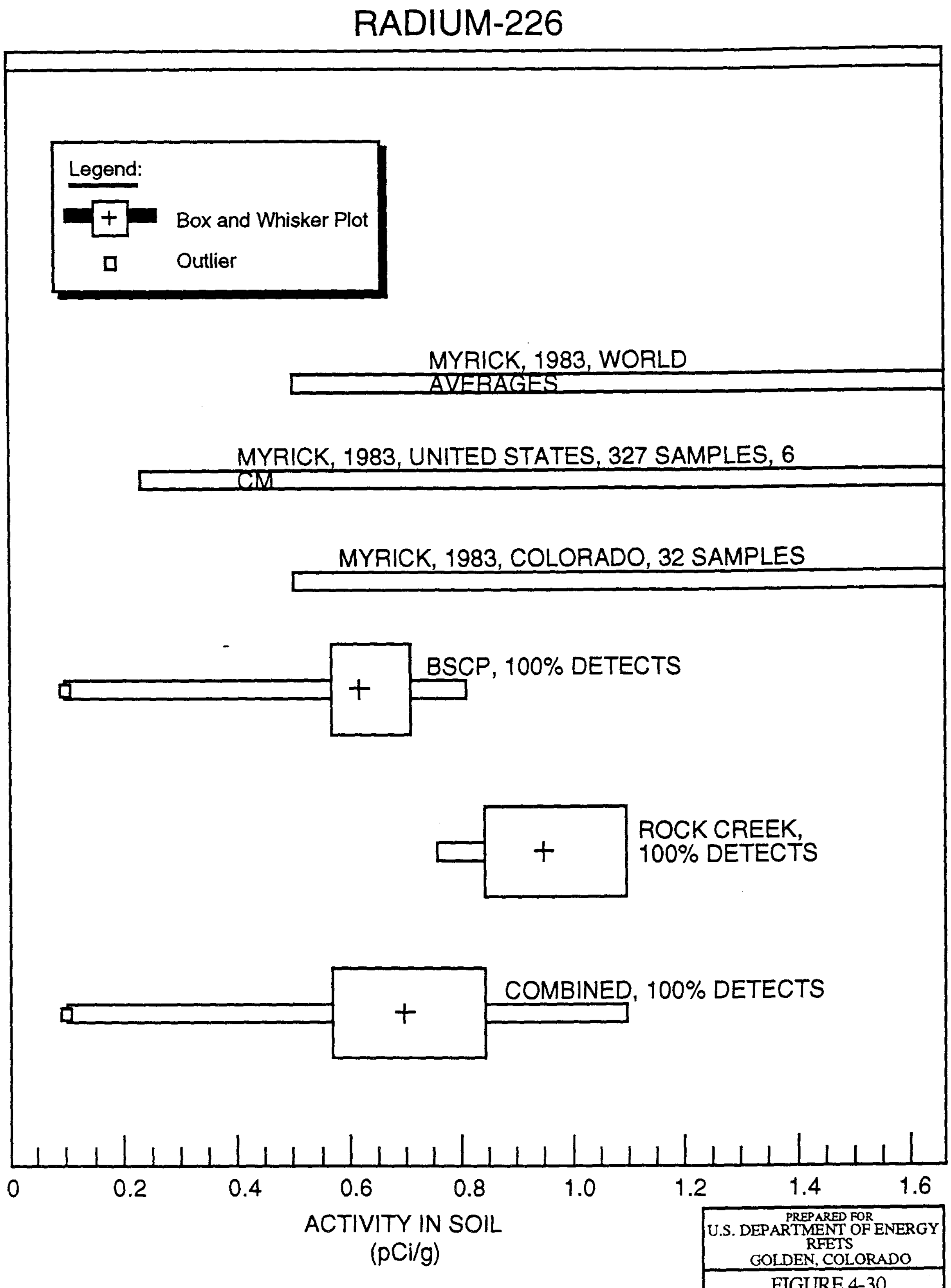

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FIGURE 4-30
RADIUM-226

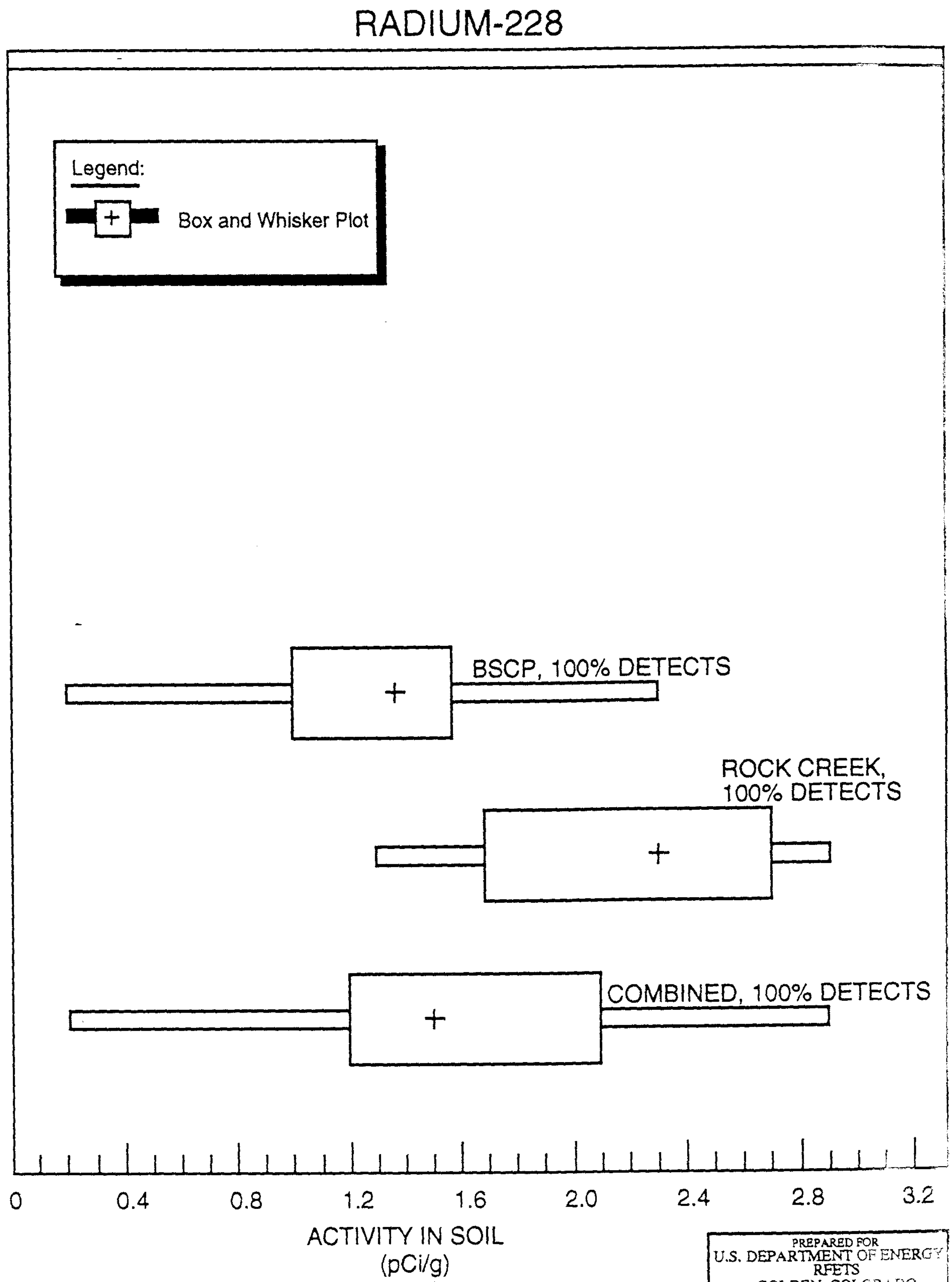

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FIGURE 4-31
RADIUM-228

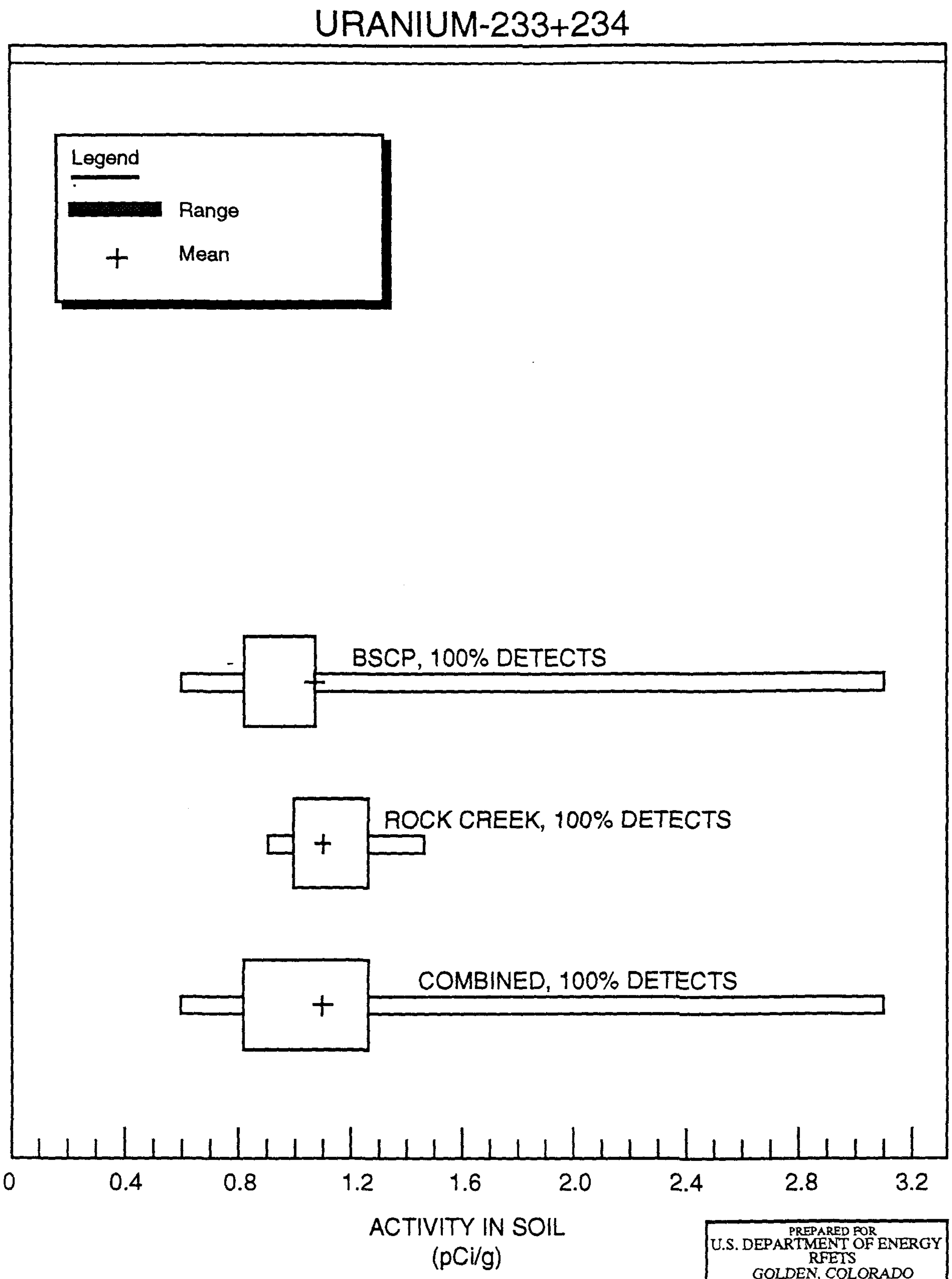

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FIGURE 4-32
URANIUM-233+234

URANIUM-235

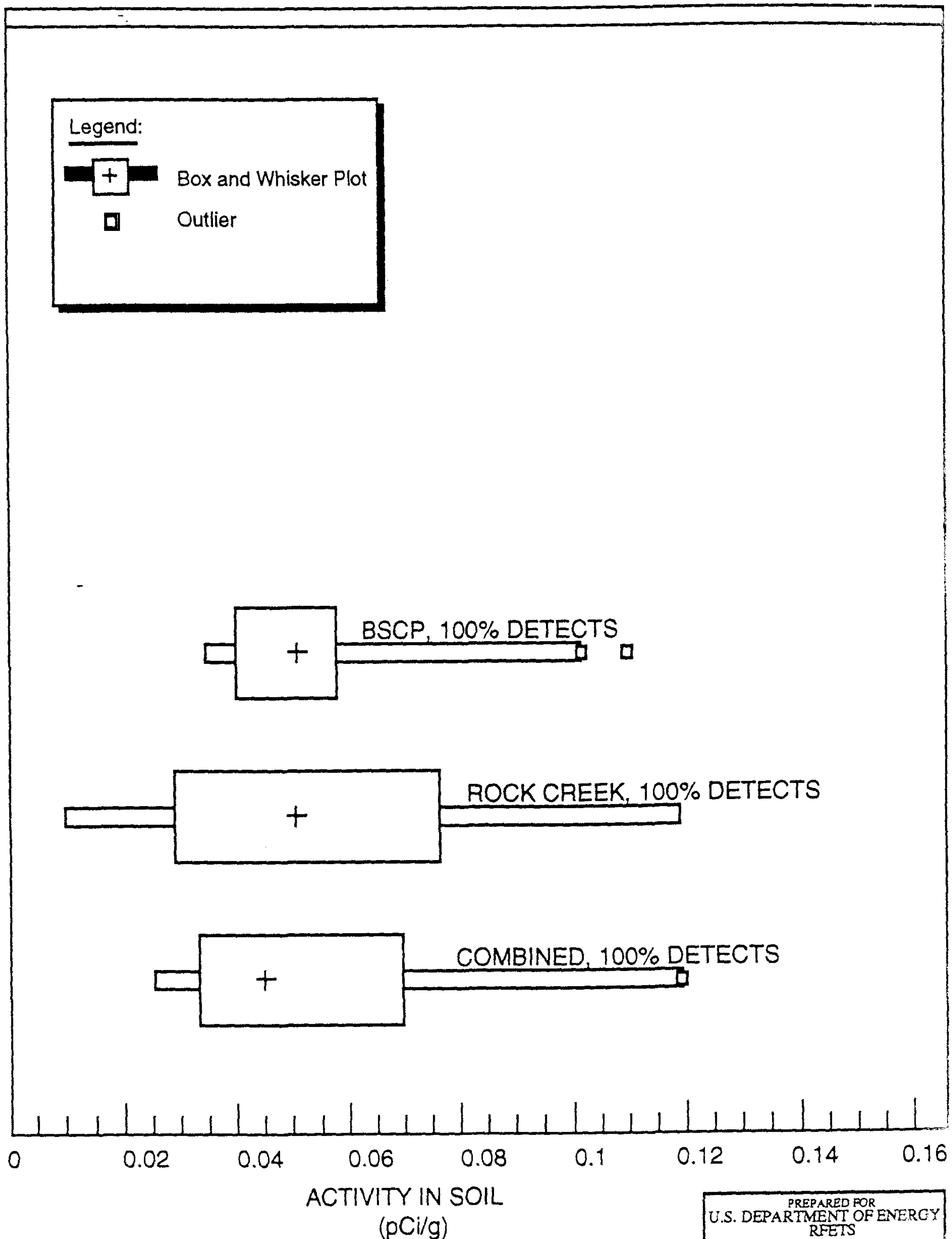

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FIGURE 4-33
URANIUM-235

URANIUM-238

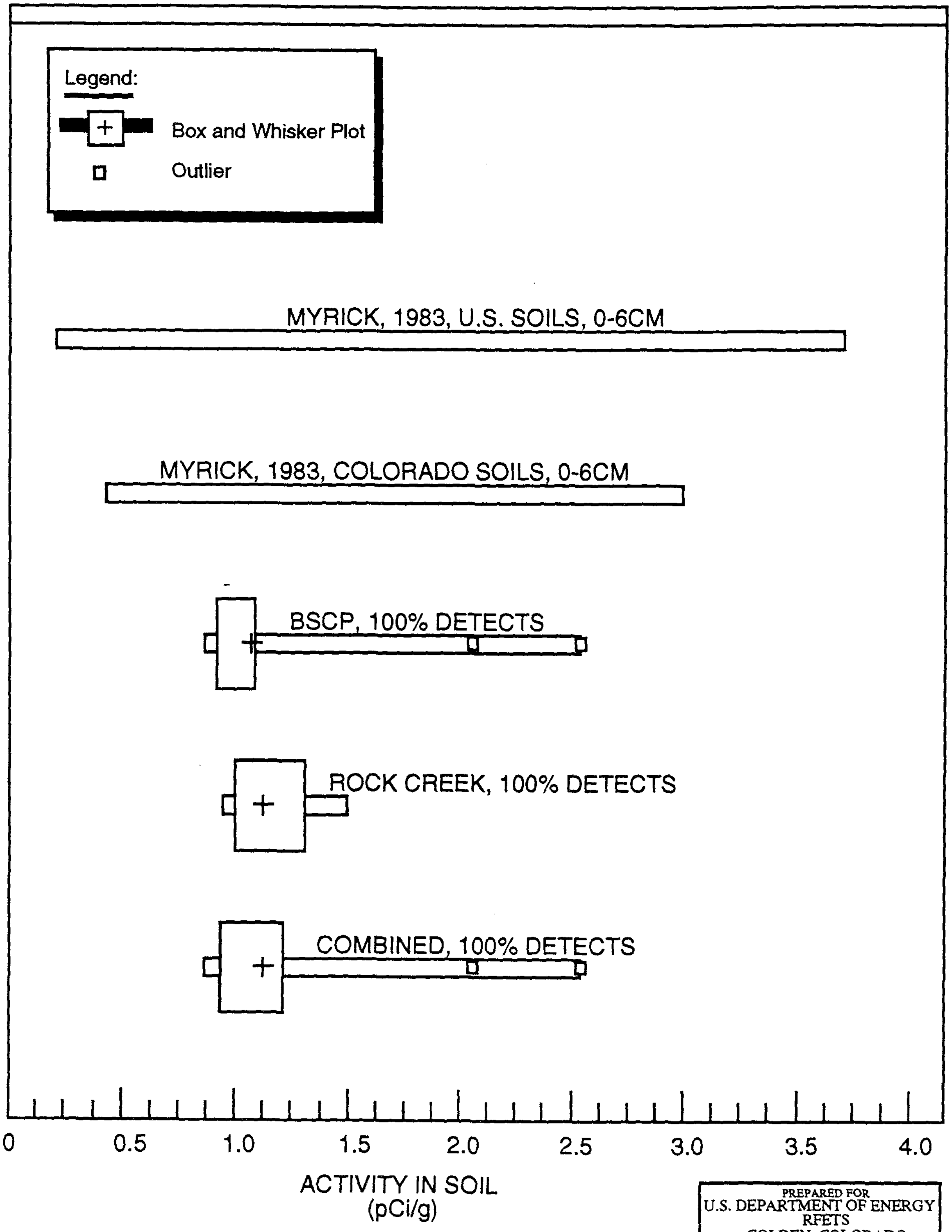

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FIGURE 4-34
URANIUM-238

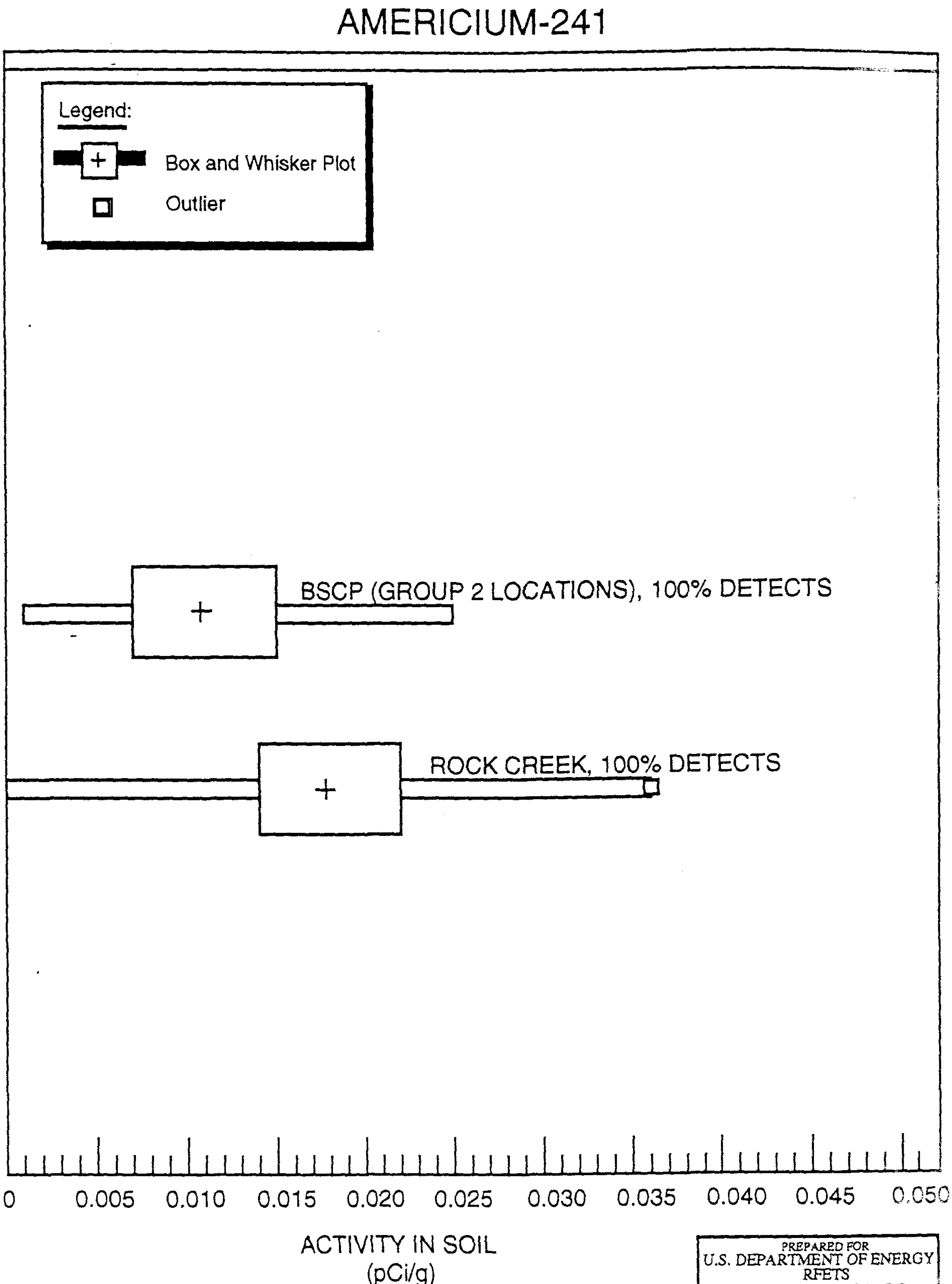

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FIGURE 4-35
AMERICIUM-241

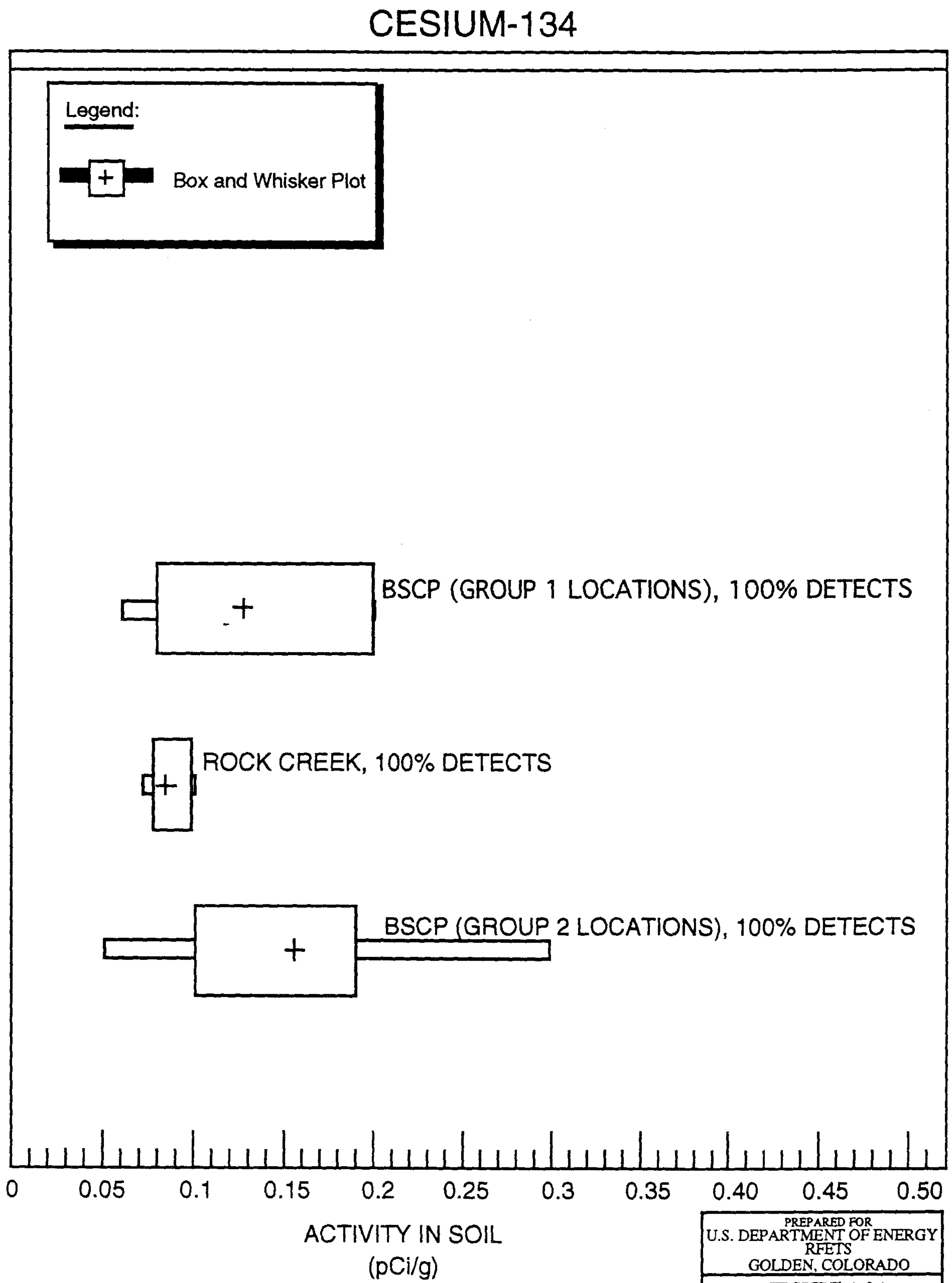

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FIGURE 4-36
CESIUM-134

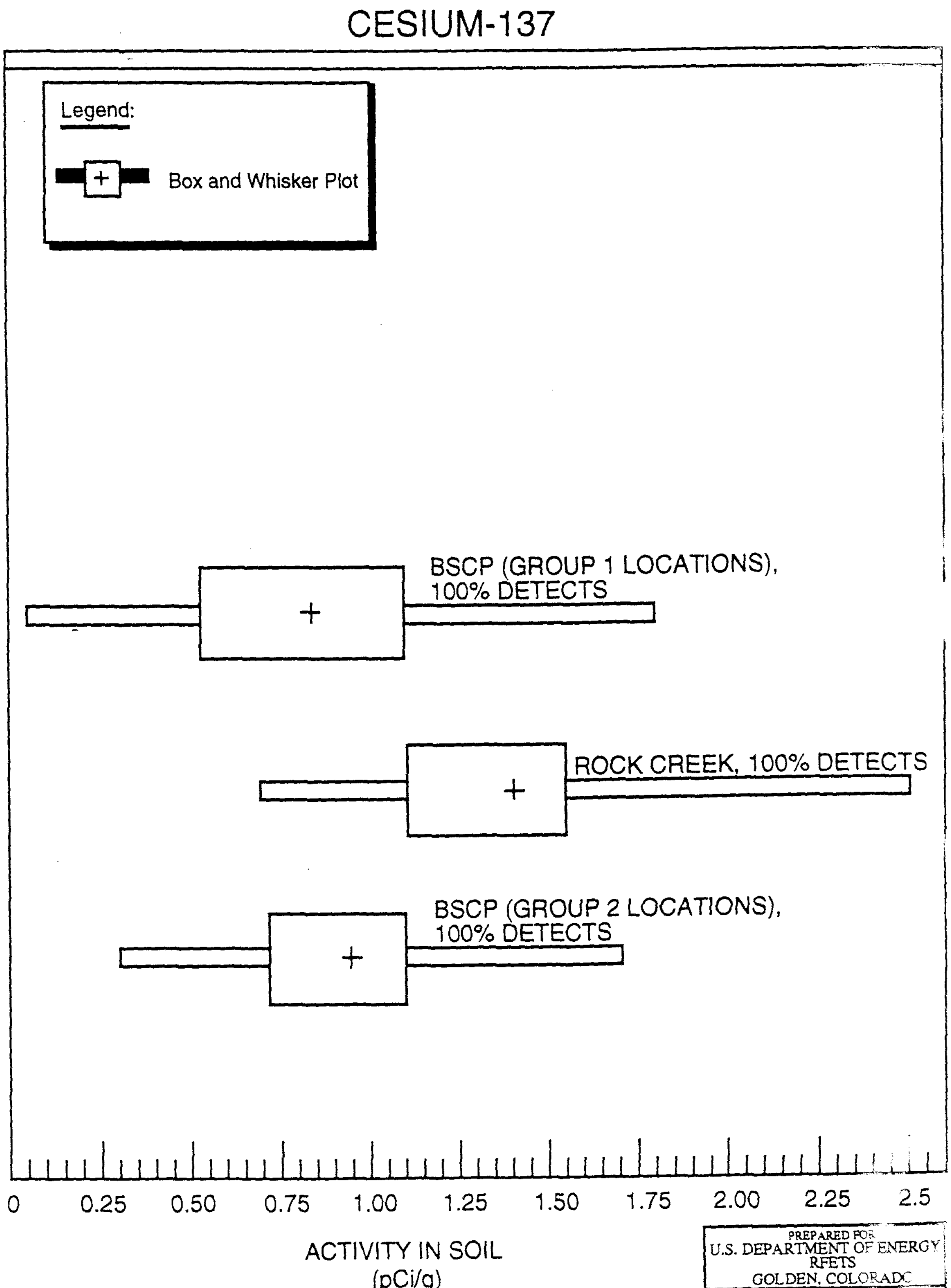

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FIGURE 4-37
CESIUM-137

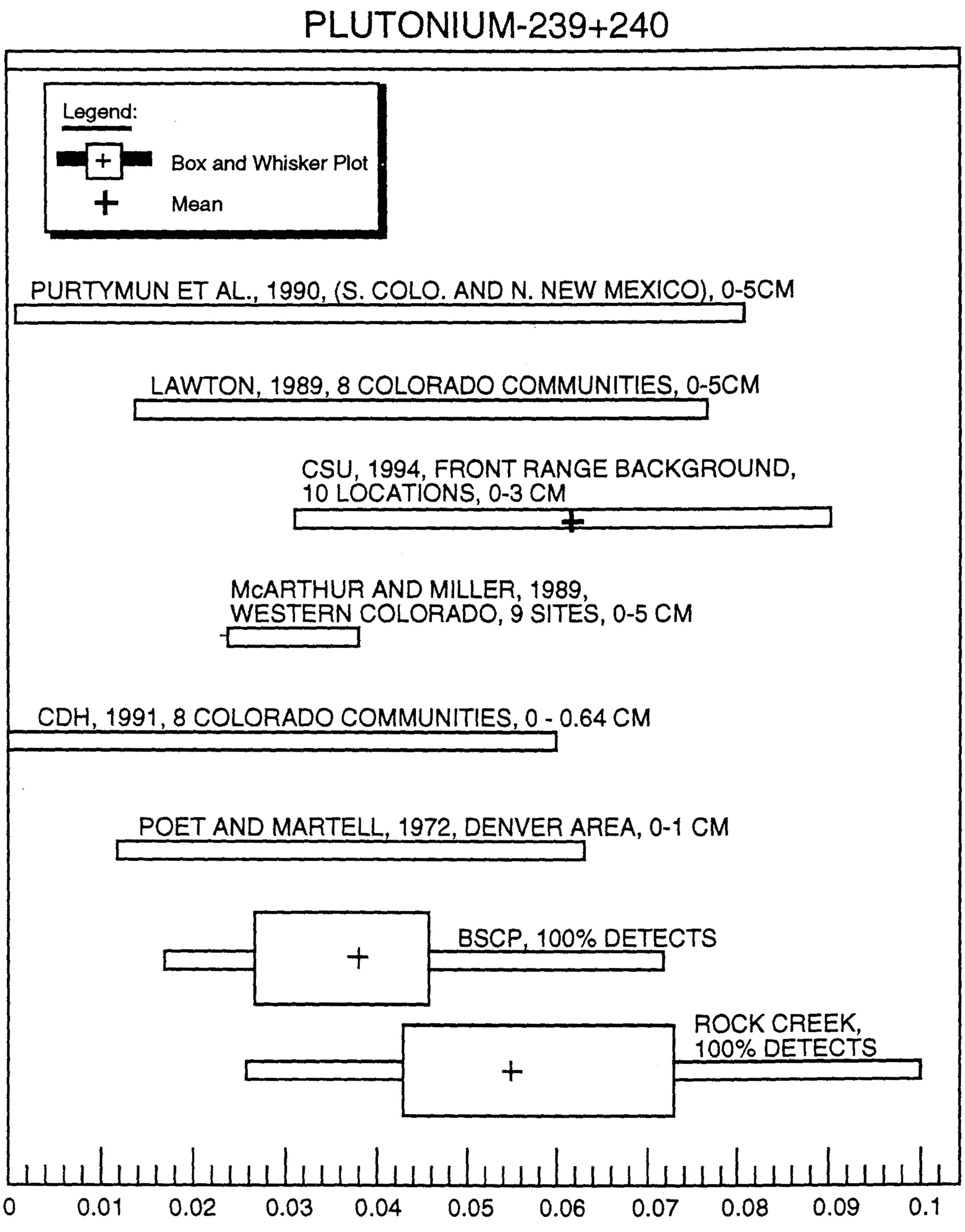

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FIGURE 4-38
PLUTONIUM-239+240

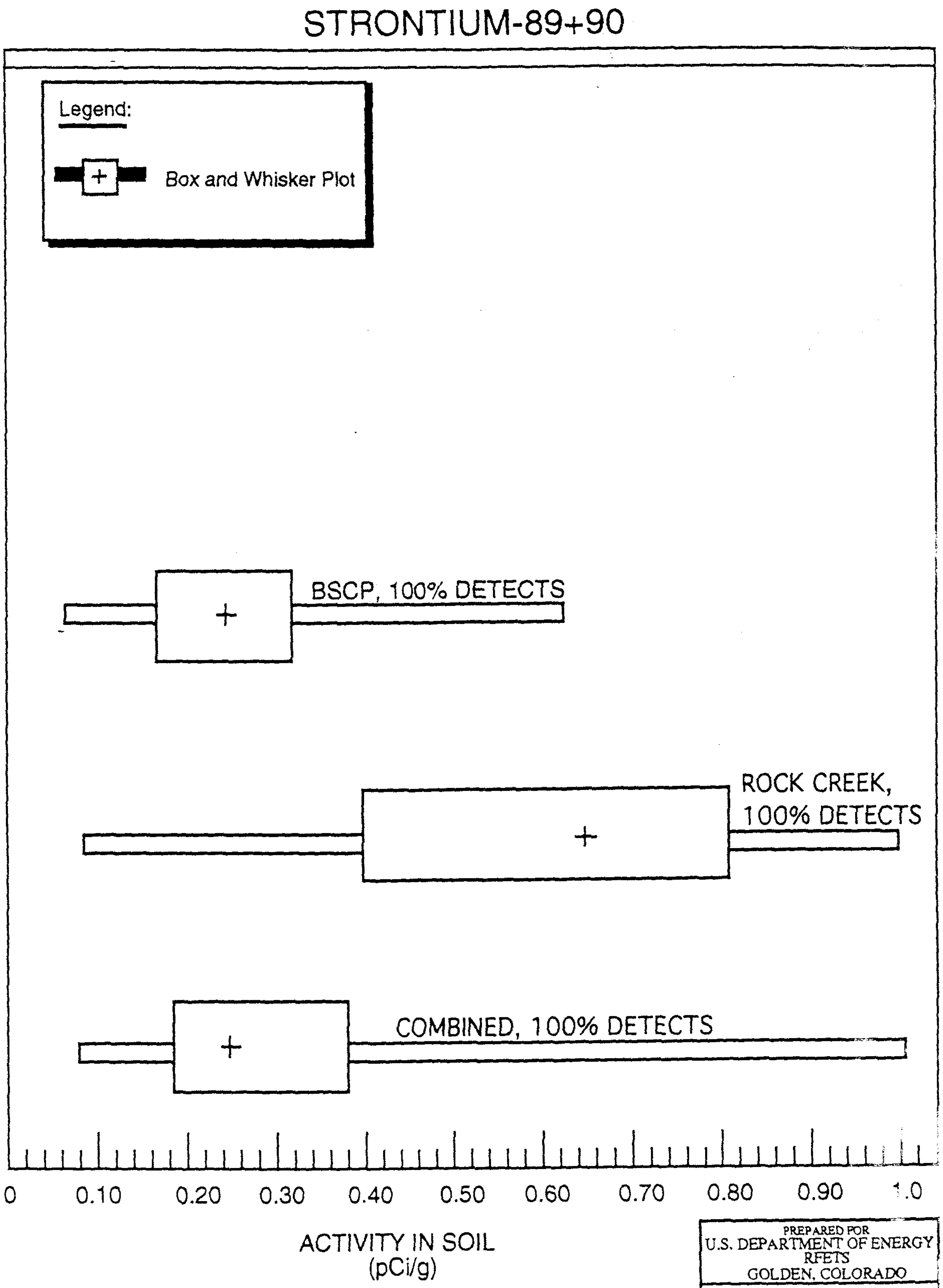

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FIGURE 4-39
STRONTIUM-89+90

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APPENDIX A

MEASUREMENT OF $^{240}PU/^{239}PU$ AND $^{241}PU/^{239}PU$ ATOM RATIOS IN SOIL SAMPLES REPRESENTATIVE OF GLOBAL FALLOUT IN COLORADO

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MEASUREMENT OF $^{240}Pu/^{239}Pu$ AND $^{241}Pu/^{239}Pu$ ATOM RATIOS IN SOIL SAMPLES REPRESENTATIVE OF GLOBAL FALLOUT IN COLORADO

FINAL REPORT

INTEGRATED CONTRACTOR ORDER (ICO) NO 261299RL5
LOS ALAMOS NATIONAL LABORATORY-RAL-033-94

PRINCIPAL INVESTIGATORS

D. W. Efurd, D. J. Rokop and F. R. Roensch

EXECUTIVE SUMMARY

This study was initiated to determine the variation in the $^{240}Pu/^{239}Pu$ and $^{241}Pu/^{239}Pu$ atoms ratio in soil samples representative of global fallout in Colorado. Twelve soil samples were collected from locations believed to be representative of global fallout. The plutonium was separated from 10 g aliquots and analyzed by alpha spectroscopy to determine the $^{239+240}Pu$ activities. Next, the samples were analyzed by thermal ionization mass spectrometry to determine the $^{240}Pu/^{239}Pu$ isotope ratios. The $^{240}Pu/^{239}Pu$ atom ratios in the samples ranged from a low of 0.143 $\pm$ 0.006 to a high of 0.170 $\pm$ 0.003. The average $^{240}Pu/^{239}Pu$ atom ratio for the 12 samples was 0.155 $\pm$ 0.019. These values are significantly different than the $^{240}Pu/^{239}Pu$ atom ratio of 0.065 that is representative of plutonium processed at RFP. These results indicate that measurement of the $^{240}Pu/^{239}Pu$ atom ratios in soil samples can be used to separate the plutonium into its global fallout component and its RFP component. The average $^{241}Pu/^{239}Pu$ atom ratio measured in this study was 0.0030 $\pm$ 0.0004. These data indicate that the samples collected for this study have $^{241}Pu/^{239}Pu$ atom ratios consistent with global fallout plutonium.

INTRODUCTION

The Rocky Flats Plant (RFP) is a Department of Energy (DOE) facility where plutonium components were manufactured for nuclear weapons. During plant operations radioactivity was inadvertently released into the biosphere. Because of RFP's location with regard to areas of public access, the release of plutonium and other radionuclides is of concern to DOE and the public. The combinations of regional, physical, ecological and other characteristics make environmental monitoring of plutonium around the site a necessity. Interpretation of the significance of the analytical results derived from these monitoring activities is difficult because the plutonium was not introduced from a single source. Studying the amounts and origins of plutonium in the terrains surrounding RFP and other locations in Colorado will give scientists and engineers better ability to identify the impact of the former production activities of RFP. It is necessary to understand the variations and contributions from the sources of the different isotopic compositions of plutonium in order to explain the meaning of local plutonium data. Quantitative measurements of ^{238}Pu and $^{239+240}Pu$ by pulse height alpha spectroscopy alone does not ascertain the origin of the plutonium. However, the "fingerprinting" of plutonium by measuring the $^{240}Pu/^{239}Pu$ isotopic composition by thermal ionization mass spectrometry measurement techniques (TIMS) is capable of distinguishing and quantifying the contributions of the different sources of plutonium in a single sample.

The primary source of plutonium in most locations in Colorado is global fallout from atmospheric testing of nuclear devices. Areas surrounding RFP may be composed of global fallout or a mixture of RFP plutonium and global fallout. Global fallout plutonium is a complicated mixture whose isotopic composition was influenced by: the type of nuclear device being tested, the location of the test (Nevada Test Site, Peoples' Republic of China, the former USSR, etc.), the mechanisms of atmospheric transport and diffusion processes coupled with various fractionation processes. The isotopic composition of global fallout varies from location to location. Therefore, the isotopic composition of fallout in Colorado must be precisely determined before the potential contribution of plutonium released from RFP can be accurately assessed at any given location.

RESULTS AND DISCUSSIONS

Mr. Jim Whiting, EG&G Rocky Flats, selected twelve soil samples collected from locations believed to be representative of global fallout in Colorado. Ten gram aliquots of each sample were traced with ultra-pure ^{242}Pu and analyzed for plutonium content by TMA Thermal Analytical Inc. They electroplated the plutonium on stainless steel planchetts and measured the concentrations by alpha pulse height analyses. Next, the planchetts were shipped to Los Alamos National Laboratory (LANL) for TIMS analyses. The plutonium was removed from the planchetts with a mixture of hydrofluoric and nitric acids. The plutonium was purified by anion exchange chromatography and analyzed by TIMS. The results are reported in Table I.

Table I.
$^{240}Pu/^{239}Pu$ Atom Ratios and Alpha Activities

Sample Number	$^{240}Pu/^{239}Pu$ Atom Ratio	Mass Spec Calc $^{239+240}Pu$ pCi/g	Alpha PHA $^{239+240}Pu$ pCi/g
SS00156EG	0.163 ± 0.035	0.035 ± 0.003	0.035 ± 0.005
SS00157EG	0.156 ± 0.026	0.057 ± 0.004	0.055 ± 0.007
SS00130EG	0.153 ± 0.004	0.049 ± 0.001	0.052 ± 0.006
SS00104EG	0.160 ± 0.005	0.061 ± 0.001	0.054 ± 0.006
SS00091EG	0.169 ± 0.004	0.030 ± 0.001	0.031 ± 0.004
SS00102EG	0.154 ± 0.011	0.044 ± 0.001	0.043 ± 0.005
SS00099EG	0.140 ± 0.008	0.068 ± 0.001	0.065 ± 0.006
SS00135EG	0.151 ± 0.002	0.088 ± 0.001	0.087 ± 0.008
SS00138EG	0.148 ± 0.007	0.092 ± 0.002	0.099 ± 0.009
SS00149EG	0.143 ± 0.006	0.053 ± 0.001	0.051 ± 0.006
SS00152EG	0.155 ± 0.004	0.036 ± 0.001	0.034 ± 0.005
SS00141EG	0.170 ± 0.003	0.010 ± 0.001	0.014 ± 0.003
2873-20	0.001 ± 0.001	0.929 ± 0.015	0.912 ± 0.108
2873-21	0.295 ± 0.198	0.001 ± 0.001	0.006 ± 0.008
2873-22	0.154 ± 0.011	0.032 ± 0.001	0.028 ± 0.005

The Alpha PHA $^{239+240}Pu$ pCi/g values reported in Table I are the alpha spectroscopy results obtained by TMA Thermal Analytical Inc.

The Mass Spec Calc $^{239+240}Pu$ pCi/g values are the equivalent alpha activities calculated from TIMS analyses. The method used to calculate the $^{239+240}Pu$ specific activities from the TIMS data is described below. TMA Thermal Analytical Inc. traced each 10 g aliquot with 5.41 dpm of ultra-pure ^{242}Pu, i. e., National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) 4334E. The ^{242}Pu alpha activity added to each sample was converted to atoms of ^{242}Pu. TIMS measured the $^{239}Pu/^{242}Pu$ and $^{240}Pu/^{242}Pu$ isotope ratios in each sample and calculated the number of atoms of ^{239}Pu and ^{240}Pu present. Next, the atoms of ^{239}Pu and ^{240}Pu were converted to $^{239+240}Pu$ alpha activities. The half-lives used to convert between specific activities and atoms are listed in Table II. The specific $^{239+240}Pu$ activities measured by alpha spectroscopy and those calculated from TIMS analyses are in excellent agreement.

All uncertainties in Table I are reported at the 95% confidence interval. Sample numbers 2873-20, 2873-21 and 2873-22 are QA/QC samples produced by TMA Thermal Analytical Inc.

Table II.
Half-Lives used to Convert Atoms to Activities

Isotope	Half-Life (years)
^{242}Pu	376000 $\pm$ 2000
^{239}Pu	24119 $\pm$ 26
^{240}Pu	6564 $\pm$ 11

The plutonium isotope ratios in Standard Reference Material 4334E were measured at LANL. The results are reported in Table III. These data indicate that the addition of 5.41 dpm of the ^{242}Pu isotope dilution tracer contributed less than 0.00001 pCi $^{239+240}Pu$ to each sample. The Certificate of Analyses for SRM-4334E is included as Appendix 1.

Table III.
Plutonium Isotope Ratios In SRM 4334E

$^{239}Pu/^{242}Pu$	$^{240}Pu/^{242}Pu$	$^{241}Pu/^{242}Pu$	$^{244}Pu/^{242}Pu$
3.2×10^{-8}	5×10^{-8}	4.7×10^{-6}	3×10^{-8}

Reagent blanks were analyzed concurrently with the samples. The results are reported in Table IV.

Table IV.
LANL Processing Blank

Sample Number	$^{240}Pu/^{239}Pu$ Atom Ratio	Mass Spec Calc $^{239+240}Pu$ pCi	Blank Contribution $^{239+240}Pu$ pCi/g
RB-1	0.2 ± 0.2	0.0009 ± 0.0003	0.00009 ± 0.00003
RB-2	0.3 ± 0.4	0.0007 ± 0.0003	0.00007 ± 0.00003

No plutonium was detected in the processing blanks analyzed at LANL. The estimates reported in Table IV were derived using the conservative estimate that all events detected by the spectrometer's pulse counting circuitry were attributable to plutonium. We cannot distinguish plutonium from isobaric interferences at these levels. These data confirm that the processing blanks introduced by preparing the samples for TIMS analyses were negligible. There was over 100 times more plutonium detected in the soil samples than in the processing blanks.

The operating characteristics of LANL's mass spectrometers were verified by analyzing a series of 1-ng aliquots of National Bureau of Standards (NBS) Standard Reference Material 947 - Plutonium Isotopic Standard. The results are summarized in Table V. These data illustrate that the instruments are capable of precisely measuring the $^{240}Pu/^{239}Pu$ atom ratios. The Certificate of Analyses for SRM-947 is included as Appendix 2.

Table V.
Analysis of NBS Standard Reference Material 947
Plutonium Isotopic Standard

Analysis Number	$^{240}Pu/^{239}Pu$ Atom Ratio*
1	0.2412
2	0.2412
3	0.2411
4	0.2412
5	0.2411
6	0.2412
7	0.2412
8	0.2412
9	0.2412
Average =	0.2412 $\pm$ 0.00001
Certified Value	0.2412

* Data decay corrected to October 13, 1994.

The $^{241}Pu/^{239}Pu$ atom ratios were measured in 4 of the samples submitted for TIMS analyses. The results are reported in Table VI.

Table VI.
$^{241}Pu/^{239}Pu$ Atom Ratios In Soils Collected in Colorado

Sample Number	$^{241}Pu/^{239}Pu$ Atom Ratio
SS00135EG	0.0033 $\pm$ 0.0006
SS00138EG	0.0030 $\pm$ 0.0005
SS00149EG	0.0030 $\pm$ 0.0002
SS00152EG	0.0028 $\pm$ 0.0015

Krey et. al., reported that the $^{241}Pu/^{239}Pu$ atom ratio in global fallout was 0.0086 $\pm$ 0.0034 in 1971. The half-life of ^{241}Pu is 14.35 $\pm$ 0.10 years.[1] Therefore, the $^{241}Pu/^{239}Pu$ atom ratio in global fallout should be 0.0027 in 1994. The average $^{241}Pu/^{239}Pu$ atom ratio measured in this study was 0.0030 $\pm$ 0.0004. These data indicate that the samples collected for this study have $^{241}Pu/^{239}Pu$ atom ratios consistent with global fallout plutonium.

CONCLUSIONS

1. The $^{240}Pu/^{239}Pu$ atom ratio in global fallout is significantly different than the $^{240}Pu/^{239}Pu$ atom ratio in the materials processed at RFP.

2. The $^{240}Pu/^{239}Pu$ atom ratio in global fallout in Colorado varies as a function of location. The $^{240}Pu/^{239}Pu$ atom ratios in the samples measured in this study ranged from a low of 0.143 $\pm$ 0.006 to a high of 0.170 $\pm$ 0.003. The average $^{240}Pu/^{239}Pu$ atom ratio for the 12 samples was 0.155 $\pm$ 0.019.

3. The $^{239+240}Pu$ activity levels as measured by alpha spectroscopy and calculated by TIMS are in excellent agreement.

4. The average $^{241}Pu/^{239}Pu$ atom ratio measured in this study was 0.0030 $\pm$ 0.0004.

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ACKNOWLEDGMENTS

Jim Whiting, EG&G Rocky Flats Plant, conceived, established and guided this study. Without his efforts the study would not have come to fruition. Duane Catlett, Rocky Flats Program Office, served as the Program Manager. Sandy Wagner, Rocky Flats Program Office, served as the Project Manager. Rodney Melgard and Nahid Mahani, TMA Thermo Analytical Inc., provided technical information that facilitated analyses of the. samples.

Appendix 1.

Standard Reference Material 4334E

National Institute of Standards & Technology

Certificate

THIS IS A PHOTOCOPY OF THE CERTIFICATE BEING MAILED TO YOU UNDER SEPARATE COVER

Standard Reference Material 4334E

Radioactivity Standard

Radionuclide	Plutonium-242
Source identification	4334E
Source description	Liquid in flame-sealed NIST borosilicate-glass ampoule [1]*
Solution mass	Approximately 5.8 grams
Solution composition	Plutonium-242 in 5 $mol \cdot L^{-1}$ nitric acid [2]
Reference time (Purification time)	1200 EST, 18 December 1989
Radioactivity concentration	26.37 $Bq \cdot g^{-1}$
Overall uncertainty	1.12 percent [3]
Radionuclidic impurities	See Table 1 [4]
Half life	$(3.733 \pm 0.012) \times 10^5$ years [5]
Measuring instrument	Two $4\pi\alpha$ liquid-scintillation counters, a calibrated germanium detector system, and a silicon surface-barrier detector

This standard reference material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M. Robin Hutchinson, Acting Group Leader.

Gaithersburg, MD
January 1993

William P. Reed, Chief
Standard Reference Materials Program

*Notes on back

NOTES

(1) Approximately five milliliters of solution. Ampoule specifications:

body diameter	16.5 ± 0.5 mm
wall thickness	0.60 ± 0.04 mm
barium content	less than 2.5 percent
lead oxide content	less than 0.02 percent
other heavy elements	trace quantities

(2) Solution density is 1.170 ± 0.001 g·mL^{-1} at 21.65 °C.

(3) The overall uncertainty was formed by taking three times the quadratic combination of the standard deviations of the mean, or approximations thereof, for the following:

a) alpha-particle-emission-rate measurements	0.02 percent
b) background	0.03 percent
c) livetime	0.05 percent
d) detection efficiency	0.25 percent
e) count-rate-vs-energy extrapolation to zero energy	0.25 percent
f) half life	0.00 percent
g) gravimetric measurements	0.10 percent
h) radionuclidic impurities	0.00 percent

(4) Values for ^{238}Pu + ^{241}Am and for ^{239}Pu + ^{240}Pu were calculated based upon measurements performed at the Lawrence Livermore National Laboratory (LLNL) shortly after purification of the ^{242}Pu in December of 1989. Values for ^{239}Pu + ^{240}Pu and for ^{241}Pu were calculated based upon measurements performed at the National Institute of Standards and Technology (NIST) in August of 1990.

(5) Evaluated Nuclear Structure Data File (ENSDF), February 1990.

For further information please contact Dr. Larry Lucas at NIST.
Telephone: (301) 975-5546
FAX: (301) 926-7416

SRM 4334E

TABLE 1

RELATIVE ACTIVITY OF RADIONUCLIDIC IMPURITIES AT REFERENCE TIME 1200 EST. 18 DECEMBER 1989 [a]			
		RELATIVE ACTIVITY AS DETERMINED BY	
RADIONUCLIDE	HALF LIFE (YEARS)	LLNL	NIST
^{238}Pu	87.74 ± 0.04 [b]	^{238}Pu + ^{241}Am <0.000 025 [c]	-------
^{239}Pu	24119 ± 26 [b]		
^{240}Pu	6570 ± 6 [b]	^{239}Pu + ^{240}Pu <0.000 005 [c]	^{239}Pu + ^{240}Pu <0.000 043 [c]
^{241}Pu	14.35 ± 0.10 [b]	-------	0.162 ± 0.002(1σ) [d]
^{242}Pu	373300 ± 1200 [b]	1.000 000	1.000 000
^{241}Am	432.2 ± 0.5 [b]	^{238}Pu + ^{241}Am <0.000 025 [c]	0.000 000 assumed

(a) Reference time is the time of purification of the plutonium-242.

(b) Evaluated Nuclear Structure Data File (ENSDF), February 1990.

(c) Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The value shown is an estimated upper limit based upon background and counting statistics.

(d) The plutonium-241 relative activity at reference time was calculated from a gamma-ray measurement of the americium-241 ingrowth as of 18 August 1990.

SRM 4334E

Appendix 2.

Standard Reference Material 947

U. S. Department of Commerce
Maurice H. Stans
Secretary

National Bureau of Standards
L. M. Branscomb, Director

National Bureau of Standards
Certificate of Analysis
Standard Reference Material 947
Plutonium Isotopic Standard

	^{238}Pu	^{239}Pu	^{240}Pu	^{241}Pu	^{242}Pu
Atom Percent	0.296	75.696	18.288	4.540*	1.180
	±0.006	±0.022	±0.022	±0.006	±0.004
Weight percent	0.294	75.600	18.341	4.572	1.193

*The value for plutonium-241 will slowly decrease (half life 14.7 years), and the other values in proportionately, because of the decay of plutonium-241 to americium-241. The values given are for Octob 1971, and were obtained on samples from which the americium was removed.

The material consists of plutonium sulfate tetrahydrate and was prepared from high- metal by the Wadco Corporation for the Atomic Energy Commission. The atomic weight o plutonium is calculated to be 239.359, using the nuclidic masses 238.0495; 239.0521; 240.0 241.0567; and 242.0587.

The values are derived from measurements made at the National Bureau of Standards, usi triple-filament thermal-ionization mass spectrometer equipped with dc amplifier circuits. The r ^{238}Pu to ^{240}Pu, ^{239}Pu to ^{240}Pu, ^{241}Pu to ^{240}Pu, and ^{242}Pu to ^{240}Pu were determinec solutions processed to remove the americium and any uranium present.

The limits indicated for the isotopic composition are at least as large as the 95 per confidence level for a single determination. Since high-purity plutonium isotopes were not avail in quantity to prepare synthetic mixtures, the accuracy is dependent on uranium and pluton exhibiting similar behavior. The observed mass spectrometer data was corrected for r discrimination effects using the data determined by the analysis of several uranium stand analyzed under similar conditions. The magnitude of the correction is about 0.10 percent per r unit.

The mass spectrometry measurements were made by E. L. Garner, using solutions prepare L. A. Machlan.

Washington, D. C. 20234
December 3, 1971

J. Paul Cali, Chief
Office of Standard Reference Mate

APPENDIX B RAW DATA

Appendix B contains the raw data for SVOCs, pesticides and PCBs, inorganics, naturally occurring radionuclides, and fallout radionuclides. These spreadsheets include the following:

- Location identification number (Location)
- Site code (Site)
- Sample identification number (Sample#)
- Laboratory Quality Control Code (QC code)
- Analyte name (Analyte)
- Laboratory Result (Result1)
- Instrument Detection Limit (IDL)
- Laboratory Qualifier (Qual)
- Validation Qualifier (Val)
- Reasons for Validation Qualifiers (R1, R2, or R4)
- Result used in the Statistical Calculations (Result2)
- Unit of Measurement (Unit)
- Contract Required Detection Limit (CRDL)
- Type of Analyte (i.e. surrogate (SUR), Tentatively Identified Compound (TIC), or target analyte) (Type2). A blank space in the Type2 column indicates that the chemical was a target analyte.

The original samples are identified as "REAL" in the QC column, whereas duplicate samples are identified as "DUP" and rinsates are identified as "RNS". If the result in the Result1 column was a non-detect (qualified as "U"), then the Result2 column contains a value that is half of the instrument detection limit. Results for rinsates, surrogate analytes, and TICs were not used in the statistical analyses.

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SEMIVOLATILES

This section includes the raw data spreadsheets for semivolatile compounds. They are organized as indicated in the introduction of Appendix B.

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107294	P7	SS00124EG	RNS	1,2,4-TRICHLOROBENZENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	1,2,4-TRICHLOROBENZENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	1,2,4-TRICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	1,2,4-TRICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	1,2,4-TRICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	1,2,4-TRICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	1,2,4-TRICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	1,2,4-TRICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	1,2,4-TRICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	1,2,4-TRICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	1,2,4-TRICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	1,2,4-TRICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	1,2,4-TRICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	1,2,4-TRICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS105994	V5	SS00111EG	REAL	1,2,4-TRICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	1,2,4-TRICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	1,2,4-TRICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	1,2,4-TRICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	1,2,4-TRICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	1,2,4-TRICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	1,2,4-TRICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	1,2,4-TRICHLOROBENZENE	760	760	U	V			380	UG/KG	330	
SS105394	D2	SS00105EG	REAL	1,2-Benzenedicarboxylic acid	360	""	J	Z			360	UG/KG		TIC
SS107294	P7	SS00124EG	RNS	1,2-DICHLOROBENZENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	1,2-DICHLOROBENZENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	1,2-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	1,2-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	1,2-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	1,2-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	1,2-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	1,2-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	1,2-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	1,2-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	1,2-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	1,2-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	1,2-DICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	1,2-DICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	1,2-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	1,2-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	1,2-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	1,2-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106294	D6	SS00114EG	REAL	1,2-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	1,2-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	1,2-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	1,2-DICHLOROBENZENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	1,3-DICHLOROBENZENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	1,3-DICHLOROBENZENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	1,3-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	1,3-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	1,3-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	1,3-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	1,3-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	1,3-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	1,3-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	1,3-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	1,3-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	1,3-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	1,3-DICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	1,3-DICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	1,3-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	1,3-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	1,3-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	1,3-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	1,3-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	1,3-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	1,3-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	1,3-DICHLOROBENZENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	1,4-DICHLOROBENZENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	1,4-DICHLOROBENZENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	1,4-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	1,4-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	1,4-DICHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00103EG	DUP	1,4-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	1,4-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	1,4-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	1,4-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	1,4-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	1,4-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	1,4-DICHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	1,4-DICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	1,4-DICHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	1,4-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106794	P1	SS00119EG	REAL	1,4-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	1,4-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	1,4-DICHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	1,4-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	1,4-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	1,4-DICHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	1,4-DICHLOROBENZENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2,4,5-TRICHLOROPHENOL	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	2,4,5-TRICHLOROPHENOL	3300	3300	U	V			1650	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	2,4,5-TRICHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	2,4,5-TRICHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	2,4,5-TRICHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	2,4,5-TRICHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	2,4,5-TRICHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	2,4,5-TRICHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	2,4,5-TRICHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	2,4,5-TRICHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	2,4,5-TRICHLOROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	2,4,5-TRICHLOROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	2,4,5-TRICHLOROPHENOL	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	2,4,5-TRICHLOROPHENOL	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	2,4,6-TRIBROMOPHENOL	57	""		Z			57	%REC	10	SUR
SS107094	D5	SS00122EG	REAL	2,4,6-TRIBROMOPHENOL	60	""		Z			60	%REC	330	SUR
SS106994	D4	SS00121EG	REAL	2,4,6-TRIBROMOPHENOL	70	""		Z			70	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	2,4,6-TRIBROMOPHENOL	77	""		Y			77	%REC	330	SUR
SS105594	V2	SS00107EG	REAL	2,4,6-TRIBROMOPHENOL	79	""		Z			79	%REC	330	SUR
SS106294	D6	SS00114EG	REAL	2,4,6-TRIBROMOPHENOL	79	""		Z			79	%REC	330	SUR
SS105494	D1	SS00106EG	REAL	2,4,6-TRIBROMOPHENOL	80	""		Z			80	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	2,4,6-TRIBROMOPHENOL	81	""		Z		52	81	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	2,4,6-TRIBROMOPHENOL	81	""		Y			81	%REC	330	SUR
SS106094	V6	SS00112EG	REAL	2,4,6-TRIBROMOPHENOL	82	""		Z			82	%REC	330	SUR
SS105394	D2	SS00105EG	REAL	2,4,6-TRIBROMOPHENOL	84	""		Z			84	%REC	330	SUR
SS105894	V4	SS00110EG	REAL	2,4,6-TRIBROMOPHENOL	85	""		Z			85	%REC	330	SUR

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107294	P7	SS00103EG	DUP	2,4,6-TRIBROMOPHENOL	86	""		Z			86	%REC	330	SUR
SS105694	D3	SS00108EG	REAL	2,4,6-TRIBROMOPHENOL	86	""		Z			86	%REC	330	SUR
SS106194	V7	SS00113EG	REAL	2,4,6-TRIBROMOPHENOL	87	""		Z			87	%REC	330	SUR
SS106894	P2	SS00120EG	REAL	2,4,6-TRIBROMOPHENOL	87	""		Z			87	%REC	330	SUR
SS105794	V3	SS00109EG	REAL	2,4,6-TRIBROMOPHENOL	88	""		Z			88	%REC	330	SUR
SS105994	V5	SS00111EG	REAL	2,4,6-TRIBROMOPHENOL	89	""		Z			89	%REC	330	SUR
SS106794	P1	SS00119EG	REAL	2,4,6-TRIBROMOPHENOL	92	""		Z			92	%REC	330	SUR
SS106594	P3	SS00117EG	REAL	2,4,6-TRIBROMOPHENOL	93	""		Z			93	%REC	330	SUR
SS106494	P5	SS00116EG	REAL	2,4,6-TRIBROMOPHENOL	94	""		Z			94	%REC	330	SUR
SS106394	P4	SS00115EG	REAL	2,4,6-TRIBROMOPHENOL	94	""		Z			94	%REC	330	SUR
SS106694	V1	SS00118EG	REAL	2,4,6-TRIBROMOPHENOL	95	""		Z			95	%REC	330	SUR
SS107294	P7	SS00125EG	REAL	2,4,6-TRIBROMOPHENOL	96	""		Z		52	96	%REC	330	SUR
SS107294	P7	SS00124EG	RNS	2,4,6-TRICHLOROPHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2,4,6-TRICHLOROPHENOL	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2,4,6-TRICHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2,4,6-TRICHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2,4,6-TRICHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2,4,6-TRICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2,4,6-TRICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2,4,6-TRICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2,4,6-TRICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2,4,6-TRICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2,4,6-TRICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2,4,6-TRICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2,4,6-TRICHLOROPHENOL	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2,4,6-TRICHLOROPHENOL	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2,4,6-TRICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2,4,6-TRICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2,4,6-TRICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2,4,6-TRICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2,4,6-TRICHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2,4,6-TRICHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2,4,6-TRICHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2,4,6-TRICHLOROPHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2,4-DICHLOROPHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2,4-DICHLOROPHENOL	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2,4-DICHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2,4-DICHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2,4-DICHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2,4-DICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2,4-DICHLOROPHENOL	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106094	V6	SS00112EG	REAL	2,4-DICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2,4-DICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2,4-DICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2,4-DICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2,4-DICHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2,4-DICHLOROPHENOL	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2,4-DICHLOROPHENOL	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2,4-DICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2,4-DICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2,4-DICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2,4-DICHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2,4-DICHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2,4-DICHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2,4-DICHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2,4-DICHLOROPHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2,4-DIMETHYLPHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2,4-DIMETHYLPHENOL	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2,4-DIMETHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2,4-DIMETHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2,4-DIMETHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2,4-DIMETHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2,4-DIMETHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2,4-DIMETHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2,4-DIMETHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2,4-DIMETHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2,4-DIMETHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2,4-DIMETHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2,4-DIMETHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2,4-DIMETHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2,4-DIMETHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2,4-DIMETHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2,4-DIMETHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2,4-DIMETHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2,4-DIMETHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2,4-DIMETHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2,4-DIMETHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2,4-DIMETHYLPHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2,4-DINITROPHENOL	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	2,4-DINITROPHENOL	3300	3300	U	V			1650	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	2,4-DINITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	2,4-DINITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107194	P6	SS00123EG	REAL	2,4-DINITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	2,4-DINITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	2,4-DINITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	2,4-DINITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	2,4-DINITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	2,4-DINITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	2,4-DINITROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	2,4-DINITROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	2,4-DINITROPHENOL	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	2,4-DINITROPHENOL	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	2,4-DINITROTOLUENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2,4-DINITROTOLUENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2,4-DINITROTOLUENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2,4-DINITROTOLUENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2,4-DINITROTOLUENE	680	680	U	V			340	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2,4-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2,4-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2,4-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2,4-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2,4-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2,4-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2,4-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2,4-DINITROTOLUENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2,4-DINITROTOLUENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2,4-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2,4-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2,4-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2,4-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2,4-DINITROTOLUENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2,4-DINITROTOLUENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2,4-DINITROTOLUENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2,4-DINITROTOLUENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2,6-DINITROTOLUENE	10	10	U	V			5	UG/L	10	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105494	D1	SS00106EG	REAL	2,6-DINITROTOLUENE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2,6-DINITROTOLUENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2,6-DINITROTOLUENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2,6-DINITROTOLUENE	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2,6-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2,6-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2,6-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2,6-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2,6-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2,6-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2,6-DINITROTOLUENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2,6-DINITROTOLUENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2,6-DINITROTOLUENE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2,6-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2,6-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2,6-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2,6-DINITROTOLUENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2,6-DINITROTOLUENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2,6-DINITROTOLUENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2,6-DINITROTOLUENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2,6-DINITROTOLUENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2-CHLORONAPHTHALENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2-CHLORONAPHTHALENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2-CHLORONAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2-CHLORONAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2-CHLORONAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2-CHLORONAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2-CHLORONAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2-CHLORONAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2-CHLORONAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2-CHLORONAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2-CHLORONAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2-CHLORONAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2-CHLORONAPHTHALENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2-CHLORONAPHTHALENE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2-CHLORONAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2-CHLORONAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2-CHLORONAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2-CHLORONAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2-CHLORONAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2-CHLORONAPHTHALENE	730	730	U	V			365	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105694	D3	SS00108EG	REAL	2-CHLORONAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2-CHLORONAPHTHALENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2-CHLOROPHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2-CHLOROPHENOL	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2-CHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2-CHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2-CHLOROPHENOL	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2-CHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2-CHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2-CHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2-CHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2-CHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2-CHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2-CHLOROPHENOL	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2-CHLOROPHENOL	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2-CHLOROPHENOL	700	700	U	V			350	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2-CHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2-CHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2-CHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2-CHLOROPHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2-CHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2-CHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2-CHLOROPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2-CHLOROPHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2-FLUOROBIPHENYL	51	""		Z			51	%REC	10	SUR
SS107094	D5	SS00122EG	REAL	2-FLUOROBIPHENYL	65	""		Z			65	%REC	330	SUR
SS106994	D4	SS00121EG	REAL	2-FLUOROBIPHENYL	74	""		Z			74	%REC	330	SUR
SS107294	P7	SS00125EG	REAL	2-FLUOROBIPHENYL	77	""		Z		52	77	%REC	330	SUR
SS105494	D1	SS00106EG	REAL	2-FLUOROBIPHENYL	81	""		Z			81	%REC	330	SUR
SS106894	P2	SS00120EG	REAL	2-FLUOROBIPHENYL	81	""		Z			81	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	2-FLUOROBIPHENYL	82	""		Y			82	%REC	330	SUR
SS107294	P7	SS00103EG	DUP	2-FLUOROBIPHENYL	82	""		Z			82	%REC	330	SUR
SS106194	V7	SS00113EG	REAL	2-FLUOROBIPHENYL	82	""		Z			82	%REC	330	SUR
SS106294	D6	SS00114EG	REAL	2-FLUOROBIPHENYL	82	""		Z			82	%REC	330	SUR
SS105594	V2	SS00107EG	REAL	2-FLUOROBIPHENYL	82	""		Z			82	%REC	330	SUR
SS106094	V6	SS00112EG	REAL	2-FLUOROBIPHENYL	83	""		Z			83	%REC	330	SUR
SS105794	V3	SS00109EG	REAL	2-FLUOROBIPHENYL	84	""		Z			84	%REC	330	SUR
SS105694	D3	SS00108EG	REAL	2-FLUOROBIPHENYL	84	""		Z			84	%REC	330	SUR
SS106394	P4	SS00115EG	REAL	2-FLUOROBIPHENYL	84	""		Z			84	%REC	330	SUR
SS105394	D2	SS00105EG	REAL	2-FLUOROBIPHENYL	84	""		Z			84	%REC	330	SUR
SS106594	P3	SS00117EG	REAL	2-FLUOROBIPHENYL	84	""		Z			84	%REC	330	SUR

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107194	P6	SS00123EG	REAL	2-FLUOROBIPHENYL	84	""		Z		52	84	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	2-FLUOROBIPHENYL	84	""		Y			84	%REC	330	SUR
SS105894	V4	SS00110EG	REAL	2-FLUOROBIPHENYL	85	""		Z			85	%REC	330	SUR
SS105994	V5	SS00111EG	REAL	2-FLUOROBIPHENYL	86	""		Z			86	%REC	330	SUR
SS106694	V1	SS00118EG	REAL	2-FLUOROBIPHENYL	89	""		Z			89	%REC	330	SUR
SS106794	P1	SS00119EG	REAL	2-FLUOROBIPHENYL	89	""		Z			89	%REC	330	SUR
SS106494	P5	SS00116EG	REAL	2-FLUOROBIPHENYL	90	""		Z			90	%REC	330	SUR
SS107294	P7	SS00124EG	RNS	2-METHYLNAPHTHALENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2-METHYLNAPHTHALENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2-METHYLNAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2-METHYLNAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2-METHYLNAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2-METHYLNAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2-METHYLNAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2-METHYLNAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2-METHYLNAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2-METHYLNAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2-METHYLNAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2-METHYLNAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2-METHYLNAPHTHALENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2-METHYLNAPHTHALENE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2-METHYLNAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2-METHYLNAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2-METHYLNAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2-METHYLNAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2-METHYLNAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2-METHYLNAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2-METHYLNAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2-METHYLNAPHTHALENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2-METHYLPHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2-METHYLPHENOL	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	2-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2-METHYLPHENOL	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105894	V4	SS00110EG	REAL	2-METHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2-METHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2-METHYLPHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	2-NITROANILINE	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	2-NITROANILINE	3300	3300	U	V			1650	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	2-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	2-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	2-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	2-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	2-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	2-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	2-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	2-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	2-NITROANILINE	3600	3600	U	V			1800	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	2-NITROANILINE	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	2-NITROANILINE	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	2-NITROANILINE	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	2-NITROPHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	2-NITROPHENOL	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2-NITROPHENOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	2-NITROPHENOL	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	2-NITROPHENOL	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	2-NITROPHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	2-NITROPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	2-NITROPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	2-NITROPHENOL	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106694	V1	SS00118EG	REAL	2-NITROPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	2-NITROPHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	2-NITROPHENOL	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	2-NITROPHENOL	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	2-NITROPHENOL	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	2-NITROPHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	2-NITROPHENOL	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	2-NITROPHENOL	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	2-NITROPHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	2-NITROPHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	2-NITROPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	2-NITROPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	2-NITROPHENOL	760	760	U	V			380	UG/KG	330	
SS107194	P6	SS00123EG	REAL	2-Pentanone	850	""	J	Z			850	UG/KG		TIC
SS107294	P7	SS00124EG	RNS	3,3'-DICHLOROBENZIDINE	20	20	U	V			10	UG/L	20	
SS107094	D5	SS00122EG	REAL	3,3'-DICHLOROBENZIDINE	1300	1300	U	V			650	UG/KG	660	
SS107194	P6	SS00123EG	REAL	3,3'-DICHLOROBENZIDINE	1300	1300	U	V			650	UG/KG	660	
SS105394	D2	SS00105EG	REAL	3,3'-DICHLOROBENZIDINE	1300	1300	U	V			650	UG/KG	660	
SS105494	D1	SS00106EG	REAL	3,3'-DICHLOROBENZIDINE	1300	1300	U	V			650	UG/KG	660	
SS107294	P7	SS00103EG	DUP	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS107294	P7	SS00125EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106894	P2	SS00120EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106794	P1	SS00119EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106694	V1	SS00118EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106394	P4	SS00115EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106294	D6	SS00114EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106194	V7	SS00113EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106094	V6	SS00112EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS105994	V5	SS00111EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS105894	V4	SS00110EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS105794	V3	SS00109EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS105694	D3	SS00108EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS105594	V2	SS00107EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106594	P3	SS00117EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106494	P5	SS00116EG	REAL	3,3'-DICHLOROBENZIDINE	1400	1400	U	V			700	UG/KG	660	
SS106994	D4	SS00121EG	REAL	3,3'-DICHLOROBENZIDINE	1500	1500	U	V			750	UG/KG	660	
SS107194	P6	SS00123EG	REAL	3-Hexen-2-one, 5-methyl-	480	""	J	Z			480	UG/KG		TIC
SS107294	P7	SS00124EG	RNS	3-NITROANILINE	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	3-NITROANILINE	3300	3300	U	V			1650	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	3-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	3-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNIT	CRDL	TYPE2
SS107094	D5	SS00122EG	REAL	3-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	3-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	3-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	3-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	3-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	3-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	3-NITROANILINE	3600	3600	U	V			1800	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	3-NITROANILINE	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	3-NITROANILINE	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	3-NITROANILINE	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	4,6-DINITRO-2-METHYLPHENOL	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3300	3300	U	V			1650	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	4,6-DINITRO-2-METHYLPHENOL	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	4-CHLORO-3-METHYLPHENOL	10	10	U	V			5	UG/L	10	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105494	D1	SS00106EG	REAL	4-CHLORO-3-METHYLPHENOL	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	4-CHLORO-3-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	4-CHLORO-3-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	4-CHLORO-3-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	4-CHLORO-3-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	4-CHLORO-3-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	4-CHLORO-3-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	4-CHLORO-3-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	4-CHLORO-3-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	4-CHLORO-3-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	4-CHLORO-3-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	4-CHLORO-3-METHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	4-CHLORO-3-METHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	4-CHLORO-3-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	4-CHLORO-3-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	4-CHLORO-3-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	4-CHLORO-3-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	4-CHLORO-3-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	4-CHLORO-3-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	4-CHLORO-3-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	4-CHLORO-3-METHYLPHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	4-CHLOROANILINE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	4-CHLOROANILINE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	4-CHLOROANILINE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	4-CHLOROANILINE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	4-CHLOROANILINE	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	4-CHLOROANILINE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	4-CHLOROANILINE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	4-CHLOROANILINE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	4-CHLOROANILINE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	4-CHLOROANILINE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	4-CHLOROANILINE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	4-CHLOROANILINE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	4-CHLOROANILINE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	4-CHLOROANILINE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	4-CHLOROANILINE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	4-CHLOROANILINE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	4-CHLOROANILINE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	4-CHLOROANILINE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	4-CHLOROANILINE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	4-CHLOROANILINE	730	730	U	V			365	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105694	D3	SS00108EG	REAL	4-CHLOROANILINE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	4-CHLOROANILINE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	4-CHLOROPHENYL PHENYL ETHER	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	4-CHLOROPHENYL PHENYL ETHER	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	4-CHLOROPHENYL PHENYL ETHER	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	4-CHLOROPHENYL PHENYL ETHER	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	4-CHLOROPHENYL PHENYL ETHER	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00103EG	DUP	4-CHLOROPHENYL PHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	4-CHLOROPHENYL PHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	4-CHLOROPHENYL PHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	4-CHLOROPHENYL PHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	4-CHLOROPHENYL PHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	4-CHLOROPHENYL PHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	4-CHLOROPHENYL PHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	4-CHLOROPHENYL PHENYL ETHER	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	4-CHLOROPHENYL PHENYL ETHER	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	4-CHLOROPHENYL PHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	4-CHLOROPHENYL PHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	4-CHLOROPHENYL PHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	4-CHLOROPHENYL PHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	4-CHLOROPHENYL PHENYL ETHER	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	4-CHLOROPHENYL PHENYL ETHER	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	4-CHLOROPHENYL PHENYL ETHER	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	4-CHLOROPHENYL PHENYL ETHER	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	4-METHYLPHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	4-METHYLPHENOL	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	4-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	4-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	4-METHYLPHENOL	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	4-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	4-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	4-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	4-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	4-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	4-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	4-METHYLPHENOL	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	4-METHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	4-METHYLPHENOL	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	4-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	4-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	4-METHYLPHENOL	710	710	U	V			355	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105594	V2	SS00107EG	REAL	4-METHYLPHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	4-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	4-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	4-METHYLPHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	4-METHYLPHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	4-NITROANILINE	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	4-NITROANILINE	3300	3300	U	V			1650	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	4-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	4-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	4-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	4-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	4-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	4-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	4-NITROANILINE	3400	3400	U	V			1700	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	4-NITROANILINE	3500	3500	U	V			1750	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	4-NITROANILINE	3600	3600	U	V			1800	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	4-NITROANILINE	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	4-NITROANILINE	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	4-NITROANILINE	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	4-NITROPHENOL	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	4-NITROPHENOL	3300	3300	U	V			1650	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	4-NITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	4-NITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	4-NITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	4-NITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	4-NITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	4-NITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	4-NITROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106194	V7	SS00113EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	4-NITROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	4-NITROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	4-NITROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	4-NITROPHENOL	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	4-NITROPHENOL	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	ACENAPHTHENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	ACENAPHTHENE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	ACENAPHTHENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	ACENAPHTHENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	ACENAPHTHENE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	ACENAPHTHENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	ACENAPHTHENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	ACENAPHTHENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	ACENAPHTHENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	ACENAPHTHENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	ACENAPHTHENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	ACENAPHTHENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	ACENAPHTHENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	ACENAPHTHENE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	ACENAPHTHENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	ACENAPHTHENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	ACENAPHTHENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	ACENAPHTHENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	ACENAPHTHENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	ACENAPHTHENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	ACENAPHTHENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	ACENAPHTHENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	ACENAPHTHYLENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	ACENAPHTHYLENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	ACENAPHTHYLENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	ACENAPHTHYLENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	ACENAPHTHYLENE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	ACENAPHTHYLENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	ACENAPHTHYLENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	ACENAPHTHYLENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	ACENAPHTHYLENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	ACENAPHTHYLENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	ACENAPHTHYLENE	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106894	P2	SS00120EG	REAL	ACENAPHTHYLENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	ACENAPHTHYLENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	ACENAPHTHYLENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	ACENAPHTHYLENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	ACENAPHTHYLENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	ACENAPHTHYLENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	ACENAPHTHYLENE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	ACENAPHTHYLENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	ACENAPHTHYLENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	ACENAPHTHYLENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	ACENAPHTHYLENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	ANTHRACENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	ANTHRACENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	ANTHRACENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	ANTHRACENE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	ANTHRACENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BENZO(a)ANTHRACENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BENZO(a)ANTHRACENE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BENZO(a)ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BENZO(a)ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BENZO(a)ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BENZO(a)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BENZO(a)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BENZO(a)ANTHRACENE	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107294	P7	SS00125EG	REAL	BENZO(a)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BENZO(a)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BENZO(a)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BENZO(a)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BENZO(a)ANTHRACENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BENZO(a)ANTHRACENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BENZO(a)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BENZO(a)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BENZO(a)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BENZO(a)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BENZO(a)ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BENZO(a)ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BENZO(a)ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BENZO(a)ANTHRACENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BENZO(a)PYRENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BENZO(a)PYRENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BENZO(a)PYRENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BENZO(a)PYRENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BENZO(a)PYRENE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BENZO(a)PYRENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BENZO(a)PYRENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BENZO(a)PYRENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BENZO(a)PYRENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BENZO(a)PYRENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BENZO(a)PYRENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BENZO(a)PYRENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BENZO(a)PYRENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BENZO(a)PYRENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BENZO(a)PYRENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BENZO(a)PYRENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BENZO(a)PYRENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BENZO(a)PYRENE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BENZO(a)PYRENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BENZO(a)PYRENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BENZO(a)PYRENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BENZO(a)PYRENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BENZO(b)FLUORANTHENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BENZO(b)FLUORANTHENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BENZO(b)FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BENZO(b)FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BENZO(b)FLUORANTHENE	680	680	U	V			340	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106594	P3	SS00117EG	REAL	BENZO(b)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BENZO(b)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BENZO(b)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BENZO(b)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BENZO(b)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BENZO(b)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BENZO(b)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BENZO(b)FLUORANTHENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BENZO(b)FLUORANTHENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BENZO(b)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BENZO(b)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BENZO(b)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BENZO(b)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BENZO(b)FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BENZO(b)FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BENZO(b)FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BENZO(b)FLUORANTHENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BENZO(ghi)PERYLENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BENZO(ghi)PERYLENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BENZO(ghi)PERYLENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BENZO(ghi)PERYLENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BENZO(ghi)PERYLENE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BENZO(ghi)PERYLENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BENZO(ghi)PERYLENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BENZO(ghi)PERYLENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BENZO(ghi)PERYLENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BENZO(ghi)PERYLENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BENZO(ghi)PERYLENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BENZO(ghi)PERYLENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BENZO(ghi)PERYLENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BENZO(ghi)PERYLENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BENZO(ghi)PERYLENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BENZO(ghi)PERYLENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BENZO(ghi)PERYLENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BENZO(ghi)PERYLENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BENZO(ghi)PERYLENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BENZO(ghi)PERYLENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BENZO(ghi)PERYLENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BENZO(ghi)PERYLENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BENZO(k)FLUORANTHENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BENZO(k)FLUORANTHENE	670	670	U	V			335	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107194	P6	SS00123EG	REAL	BENZO(k)FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BENZO(k)FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BENZO(k)FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BENZO(k)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BENZO(k)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BENZO(k)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BENZO(k)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BENZO(k)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BENZO(k)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BENZO(k)FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BENZO(k)FLUORANTHENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BENZO(k)FLUORANTHENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BENZO(k)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BENZO(k)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BENZO(k)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BENZO(k)FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BENZO(k)FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BENZO(k)FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BENZO(k)FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BENZO(k)FLUORANTHENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BENZOIC ACID	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	BENZOIC ACID	3300	3300	U	V			1650	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	BENZOIC ACID	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	BENZOIC ACID	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	BENZOIC ACID	3400	3400	U	V			1700	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	BENZOIC ACID	3400	3400	U	V			1700	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	BENZOIC ACID	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	BENZOIC ACID	3400	3400	U	V			1700	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	BENZOIC ACID	3400	3400	U	V			1700	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00125EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	BENZOIC ACID	3500	3500	U	V			1750	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	BENZOIC ACID	3600	3600	U	V			1800	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	BENZOIC ACID	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	BENZOIC ACID	3700	3700	U	V			1850	UG/KG	1600	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106994	D4	SS00121EG	REAL	BENZOIC ACID	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	BENZYL ALCOHOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BENZYL ALCOHOL	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BENZYL ALCOHOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BENZYL ALCOHOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BENZYL ALCOHOL	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BENZYL ALCOHOL	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BENZYL ALCOHOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BENZYL ALCOHOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BENZYL ALCOHOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BENZYL ALCOHOL	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BENZYL ALCOHOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BENZYL ALCOHOL	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BENZYL ALCOHOL	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BENZYL ALCOHOL	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BENZYL ALCOHOL	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BENZYL ALCOHOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BENZYL ALCOHOL	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BENZYL ALCOHOL	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BENZYL ALCOHOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BENZYL ALCOHOL	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BENZYL ALCOHOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BENZYL ALCOHOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BIS(2-CHLOROETHOXY)METHANE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BIS(2-CHLOROETHOXY)METHANE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BIS(2-CHLOROETHOXY)METHANE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BIS(2-CHLOROETHOXY)METHANE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BIS(2-CHLOROETHOXY)METHANE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BIS(2-CHLOROETHOXY)METHANE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BIS(2-CHLOROETHOXY)METHANE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BIS(2-CHLOROETHOXY)METHANE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BIS(2-CHLOROETHOXY)METHANE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BIS(2-CHLOROETHOXY)METHANE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BIS(2-CHLOROETHOXY)METHANE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BIS(2-CHLOROETHOXY)METHANE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BIS(2-CHLOROETHOXY)METHANE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BIS(2-CHLOROETHOXY)METHANE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BIS(2-CHLOROETHOXY)METHANE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BIS(2-CHLOROETHOXY)METHANE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BIS(2-CHLOROETHOXY)METHANE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BIS(2-CHLOROETHOXY)METHANE	710	710	U	V			355	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106294	D6	SS00114EG	REAL	BIS(2-CHLOROETHOXY)METHANE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BIS(2-CHLOROETHOXY)METHANE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BIS(2-CHLOROETHOXY)METHANE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BIS(2-CHLOROETHOXY)METHANE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BIS(2-CHLOROETHYL)ETHER	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BIS(2-CHLOROETHYL)ETHER	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BIS(2-CHLOROETHYL)ETHER	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BIS(2-CHLOROETHYL)ETHER	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BIS(2-CHLOROETHYL)ETHER	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BIS(2-CHLOROETHYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BIS(2-CHLOROETHYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BIS(2-CHLOROETHYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BIS(2-CHLOROETHYL)ETHER	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BIS(2-CHLOROETHYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BIS(2-CHLOROETHYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BIS(2-CHLOROETHYL)ETHER	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BIS(2-CHLOROETHYL)ETHER	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BIS(2-CHLOROETHYL)ETHER	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BIS(2-CHLOROETHYL)ETHER	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BIS(2-CHLOROETHYL)ETHER	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BIS(2-CHLOROETHYL)ETHER	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BIS(2-CHLOROETHYL)ETHER	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BIS(2-CHLOROETHYL)ETHER	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BIS(2-CHLOROETHYL)ETHER	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BIS(2-CHLOROETHYL)ETHER	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BIS(2-CHLOROETHYL)ETHER	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BIS(2-CHLOROISOPROPYL)ETHER	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BIS(2-CHLOROISOPROPYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	710	710	U	V			355	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNIT	CRDL	TYPE2
SS105994	V5	SS00111EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BIS(2-CHLOROISOPROPYL)ETHER	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BIS(2-ETHYLHEXYL)PHTHALATE	10	10	U	V			5	UG/L	10	
SS105794	V3	SS00109EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	75	""	J	A			75	UG/KG	330	
SS106394	P4	SS00115EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	91	""	J	A			91	UG/KG	330	
SS105494	D1	SS00106EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BIS(2-ETHYLHEXYL)PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BIS(2-ETHYLHEXYL)PHTHALATE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	BUTYL BENZYL PHTHALATE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	BUTYL BENZYL PHTHALATE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	BUTYL BENZYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	BUTYL BENZYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	BUTYL BENZYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	BUTYL BENZYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	BUTYL BENZYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	BUTYL BENZYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	BUTYL BENZYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	BUTYL BENZYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	BUTYL BENZYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	BUTYL BENZYL PHTHALATE	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106394	P4	SS00115EG	REAL	BUTYL BENZYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	BUTYL BENZYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	BUTYL BENZYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	BUTYL BENZYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	BUTYL BENZYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	BUTYL BENZYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	BUTYL BENZYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	BUTYL BENZYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	BUTYL BENZYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	BUTYL BENZYL PHTHALATE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	CHRYSENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	CHRYSENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	CHRYSENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	CHRYSENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	CHRYSENE	680	680	U	V			340	UG/KG	330	
SS106094	V6	SS00112EG	REAL	CHRYSENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	CHRYSENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	CHRYSENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	CHRYSENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	CHRYSENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	CHRYSENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	CHRYSENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	CHRYSENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	CHRYSENE	700	700	U	V			350	UG/KG	330	
SS105994	V5	SS00111EG	REAL	CHRYSENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	CHRYSENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	CHRYSENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	CHRYSENE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	CHRYSENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	CHRYSENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	CHRYSENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	CHRYSENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	DI-n-BUTYL PHTHALATE	10	10	U	V			5	UG/L	10	
SS107294	P7	SS00125EG	REAL	DI-n-BUTYL PHTHALATE	160	""	J	A			160	UG/KG	330	
SS105494	D1	SS00106EG	REAL	DI-n-BUTYL PHTHALATE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	DI-n-BUTYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	DI-n-BUTYL PHTHALATE	680	680	U	JA	49		340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	DI-n-BUTYL PHTHALATE	680	680	U	JA	49		340	UG/KG	330	
SS106894	P2	SS00120EG	REAL	DI-n-BUTYL PHTHALATE	690	690	U	JA	49		345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	DI-n-BUTYL PHTHALATE	690	690	U	JA	49		345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	DI-n-BUTYL PHTHALATE	690	690	U	JA	49		345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106494	P5	SS00116EG	REAL	DI-n-BUTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	DI-n-BUTYL PHTHALATE	690	690	U	JA	49		345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	DI-n-BUTYL PHTHALATE	690	690	U	JA	49		345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	DI-n-BUTYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	DI-n-BUTYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	DI-n-BUTYL PHTHALATE	710	710	U	JA	49		355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	DI-n-BUTYL PHTHALATE	710	710	U	JA	49		355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	DI-n-BUTYL PHTHALATE	710	710	U	JA	49		355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	DI-n-BUTYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	DI-n-BUTYL PHTHALATE	730	730	U	JA	49		365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	DI-n-BUTYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	DI-n-BUTYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	DI-n-BUTYL PHTHALATE	760	760	U	JA	49		380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	DI-n-OCTYL PHTHALATE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	DI-n-OCTYL PHTHALATE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	DI-n-OCTYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	DI-n-OCTYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	DI-n-OCTYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	DI-n-OCTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	DI-n-OCTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	DI-n-OCTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	DI-n-OCTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	DI-n-OCTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	DI-n-OCTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	DI-n-OCTYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	DI-n-OCTYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	DI-n-OCTYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	DI-n-OCTYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	DI-n-OCTYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	DI-n-OCTYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	DI-n-OCTYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	DI-n-OCTYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	DI-n-OCTYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	DI-n-OCTYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	DI-n-OCTYL PHTHALATE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	DIBENZO(a,h)ANTHRACENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	DIBENZO(a,h)ANTHRACENE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	DIBENZO(a,h)ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	DIBENZO(a,h)ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	DIBENZO(a,h)ANTHRACENE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	DIBENZO(a,h)ANTHRACENE	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R3	R4	RESULT2	UNIT	CRDL	TYPE2
SS107294	P7	SS00103EG	DUP	DIBENZO(a,h)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	DIBENZO(a,h)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	DIBENZO(a,h)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	DIBENZO(a,h)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	DIBENZO(a,h)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	DIBENZO(a,h)ANTHRACENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	DIBENZO(a,h)ANTHRACENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	DIBENZO(a,h)ANTHRACENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	DIBENZO(a,h)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	DIBENZO(a,h)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	DIBENZO(a,h)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	DIBENZO(a,h)ANTHRACENE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	DIBENZO(a,h)ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	DIBENZO(a,h)ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	DIBENZO(a,h)ANTHRACENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	DIBENZO(a,h)ANTHRACENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	DIBENZOFURAN	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	DIBENZOFURAN	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	DIBENZOFURAN	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	DIBENZOFURAN	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	DIBENZOFURAN	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	DIBENZOFURAN	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	DIBENZOFURAN	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	DIBENZOFURAN	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	DIBENZOFURAN	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	DIBENZOFURAN	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	DIBENZOFURAN	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	DIBENZOFURAN	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	DIBENZOFURAN	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	DIBENZOFURAN	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	DIBENZOFURAN	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	DIBENZOFURAN	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	DIBENZOFURAN	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	DIBENZOFURAN	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	DIBENZOFURAN	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	DIBENZOFURAN	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	DIBENZOFURAN	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	DIBENZOFURAN	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	DIETHYL PHTHALATE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	DIETHYL PHTHALATE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	DIETHYL PHTHALATE	680	680	U	V			340	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107194	P6	SS00123EG	REAL	DIETHYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	DIETHYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	DIETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	DIETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	DIETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	DIETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	DIETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	DIETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	DIETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	DIETHYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	DIETHYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	DIETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	DIETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	DIETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	DIETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	DIETHYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	DIETHYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	DIETHYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	DIETHYL PHTHALATE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	DIMETHYL PHTHALATE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	DIMETHYL PHTHALATE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	DIMETHYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	DIMETHYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	DIMETHYL PHTHALATE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	DIMETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	DIMETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	DIMETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	DIMETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	DIMETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	DIMETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	DIMETHYL PHTHALATE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	DIMETHYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	DIMETHYL PHTHALATE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	DIMETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	DIMETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	DIMETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	DIMETHYL PHTHALATE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	DIMETHYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	DIMETHYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	DIMETHYL PHTHALATE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	DIMETHYL PHTHALATE	760	760	U	V			380	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107294	P7	SS00124EG	RNS	FLUORANTHENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	FLUORANTHENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	FLUORANTHENE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00103EG	DUP	FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	FLUORANTHENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	FLUORANTHENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	FLUORANTHENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	FLUORANTHENE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	FLUORANTHENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	FLUORANTHENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	FLUORENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	FLUORENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	FLUORENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	FLUORENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	FLUORENE	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	FLUORENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	FLUORENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	FLUORENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	FLUORENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	FLUORENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	FLUORENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	FLUORENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	FLUORENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	FLUORENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	FLUORENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	FLUORENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	FLUORENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	FLUORENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	FLUORENE	730	730	U	V			365	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNIT	CRDL	TYPE2
SS105794	V3	SS00109EG	REAL	FLUORENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	FLUORENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	FLUORENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	HEXACHLOROBENZENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	HEXACHLOROBENZENE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	HEXACHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	HEXACHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	HEXACHLOROBENZENE	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	HEXACHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	HEXACHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	HEXACHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	HEXACHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	HEXACHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	HEXACHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	HEXACHLOROBENZENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	HEXACHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	HEXACHLOROBENZENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	HEXACHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	HEXACHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	HEXACHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	HEXACHLOROBENZENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	HEXACHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	HEXACHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	HEXACHLOROBENZENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	HEXACHLOROBENZENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	HEXACHLOROBUTADIENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	HEXACHLOROBUTADIENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	HEXACHLOROBUTADIENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	HEXACHLOROBUTADIENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	HEXACHLOROBUTADIENE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	HEXACHLOROBUTADIENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	HEXACHLOROBUTADIENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	HEXACHLOROBUTADIENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	HEXACHLOROBUTADIENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	HEXACHLOROBUTADIENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	HEXACHLOROBUTADIENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	HEXACHLOROBUTADIENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	HEXACHLOROBUTADIENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	HEXACHLOROBUTADIENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	HEXACHLOROBUTADIENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	HEXACHLOROBUTADIENE	710	710	U	V			355	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105994	V5	SS00111EG	REAL	HEXACHLOROBUTADIENE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	HEXACHLOROBUTADIENE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	HEXACHLOROBUTADIENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	HEXACHLOROBUTADIENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	HEXACHLOROBUTADIENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	HEXACHLOROBUTADIENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	HEXACHLOROCYCLOPENTADIENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	HEXACHLOROCYCLOPENTADIENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	HEXACHLOROCYCLOPENTADIENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	HEXACHLOROCYCLOPENTADIENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	HEXACHLOROCYCLOPENTADIENE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	HEXACHLOROCYCLOPENTADIENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	HEXACHLOROCYCLOPENTADIENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	HEXACHLOROCYCLOPENTADIENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	HEXACHLOROCYCLOPENTADIENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	HEXACHLOROCYCLOPENTADIENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	HEXACHLOROCYCLOPENTADIENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	HEXACHLOROCYCLOPENTADIENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	HEXACHLOROCYCLOPENTADIENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	HEXACHLOROCYCLOPENTADIENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	HEXACHLOROCYCLOPENTADIENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	HEXACHLOROCYCLOPENTADIENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	HEXACHLOROCYCLOPENTADIENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	HEXACHLOROCYCLOPENTADIENE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	HEXACHLOROCYCLOPENTADIENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	HEXACHLOROCYCLOPENTADIENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	HEXACHLOROCYCLOPENTADIENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	HEXACHLOROCYCLOPENTADIENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	HEXACHLOROETHANE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	HEXACHLOROETHANE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	HEXACHLOROETHANE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	HEXACHLOROETHANE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	HEXACHLOROETHANE	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	HEXACHLOROETHANE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	HEXACHLOROETHANE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	HEXACHLOROETHANE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	HEXACHLOROETHANE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	HEXACHLOROETHANE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	HEXACHLOROETHANE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	HEXACHLOROETHANE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	HEXACHLOROETHANE	700	700	U	V			350	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE ID	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105894	V4	SS00110EG	REAL	HEXACHLOROETHANE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	HEXACHLOROETHANE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	HEXACHLOROETHANE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	HEXACHLOROETHANE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	HEXACHLOROETHANE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	HEXACHLOROETHANE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	HEXACHLOROETHANE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	HEXACHLOROETHANE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	HEXACHLOROETHANE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00125EG	REAL	Hexadecanoic acid	450	""	J	Z			450	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Hexanedioic acid, dioctyl es	290	""	J	Z			290	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Hexanedioic acid, dioctyl es	1700	""	J	Z			1700	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Hexanedioic acid, dioctyl es	3400	""	J	Z			3400	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Hexanedioic acid, dioctyl es	4100	""	J	Z			4100	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Hexanedioic acid, dioctyl es	5000	""	J	Z			5000	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Hexanedioic acid, dioctyl es	7600	""	J	Z			7600	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Hexanedioic acid, dioctyl es	7800	""	J	Z			7800	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Hexanedioic acid, dioctyl es	9000	""	J	Z			9000	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Hexanedioic acid, dioctyl es	9100	""	J	Z			9100	UG/KG		TIC
SS105494	D1	SS00106EG	REAL	Hexanedioic acid, dioctyl es	10000	""	J	Z			10000	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Hexanedioic acid, dioctyl es	12000	""	J	Z			12000	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Hexanedioic acid, dioctyl es	12000	""	J	Z			12000	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Hexanedioic acid, dioctyl es	17000	""	J	Z			17000	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Hexanedioic acid, dioctyl es	18000	""	J	Z			18000	UG/KG		TIC
SS107294	P7	SS00124EG	RNS	INDENO(1,2,3-cd)PYRENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	INDENO(1,2,3-cd)PYRENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	INDENO(1,2,3-cd)PYRENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	INDENO(1,2,3-cd)PYRENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	INDENO(1,2,3-cd)PYRENE	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	INDENO(1,2,3-cd)PYRENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	INDENO(1,2,3-cd)PYRENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	INDENO(1,2,3-cd)PYRENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	INDENO(1,2,3-cd)PYRENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	INDENO(1,2,3-cd)PYRENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	INDENO(1,2,3-cd)PYRENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	INDENO(1,2,3-cd)PYRENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	INDENO(1,2,3-cd)PYRENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	INDENO(1,2,3-cd)PYRENE	700	700	U	V			350	UG/KG	330	
SS106194	V7	SS00113EG	REAL	INDENO(1,2,3-cd)PYRENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	INDENO(1,2,3-cd)PYRENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	INDENO(1,2,3-cd)PYRENE	710	710	U	V			355	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105594	V2	SS00107EG	REAL	INDENO(1,2,3-cd)PYRENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	INDENO(1,2,3-cd)PYRENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	INDENO(1,2,3-cd)PYRENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	INDENO(1,2,3-cd)PYRENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	INDENO(1,2,3-cd)PYRENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	ISOPHORONE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	ISOPHORONE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	ISOPHORONE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	ISOPHORONE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	ISOPHORONE	680	680	U	V			340	UG/KG	330	
SS106894	P2	SS00120EG	REAL	ISOPHORONE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	ISOPHORONE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	ISOPHORONE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	ISOPHORONE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	ISOPHORONE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	ISOPHORONE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	ISOPHORONE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	ISOPHORONE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	ISOPHORONE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	ISOPHORONE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	ISOPHORONE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	ISOPHORONE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	ISOPHORONE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	ISOPHORONE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	ISOPHORONE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	ISOPHORONE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	ISOPHORONE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	N-NITROSO-DI-n-PROPYLAMINE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	680	680	U	V			340	UG/KG	330	
SS106694	V1	SS00118EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	N-NITROSO-DI-n-PROPYLAMINE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	700	700	U	V			350	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105594	V2	SS00107EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	N-NITROSO-DI-n-PROPYLAMINE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	N-NITROSODIPHENYLAMINE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	N-NITROSODIPHENYLAMINE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	N-NITROSODIPHENYLAMINE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	N-NITROSODIPHENYLAMINE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	N-NITROSODIPHENYLAMINE	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00125EG	REAL	N-NITROSODIPHENYLAMINE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	N-NITROSODIPHENYLAMINE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	N-NITROSODIPHENYLAMINE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	N-NITROSODIPHENYLAMINE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	N-NITROSODIPHENYLAMINE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	N-NITROSODIPHENYLAMINE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	N-NITROSODIPHENYLAMINE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	N-NITROSODIPHENYLAMINE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	N-NITROSODIPHENYLAMINE	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	N-NITROSODIPHENYLAMINE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	N-NITROSODIPHENYLAMINE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	N-NITROSODIPHENYLAMINE	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	N-NITROSODIPHENYLAMINE	710	710	U	V			355	UG/KG	330	
SS105694	D3	SS00108EG	REAL	N-NITROSODIPHENYLAMINE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	N-NITROSODIPHENYLAMINE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	N-NITROSODIPHENYLAMINE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	N-NITROSODIPHENYLAMINE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	NAPHTHALENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	NAPHTHALENE	670	670	U	V			335	UG/KG	330	
SS107094	D5	SS00122EG	REAL	NAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	NAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	NAPHTHALENE	680	680	U	V			340	UG/KG	330	
SS106094	V6	SS00112EG	REAL	NAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	NAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	NAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	NAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	NAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	NAPHTHALENE	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107294	P7	SS00125EG	REAL	NAPHTHALENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	NAPHTHALENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	NAPHTHALENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	NAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	NAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	NAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	NAPHTHALENE	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	NAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	NAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	NAPHTHALENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	NAPHTHALENE	760	760	U	V			380	UG/KG	330	
SS106794	P1	SS00119EG	REAL	Naphthalene, 6,7-diethyl-1,2	460	""	J	Z			460	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Naphthalene, 6,7-diethyl-1,2	690	""	J	Z			690	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Naphthalene, 6,7-diethyl-1,2	730	""	J	Z			730	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Naphthalene, 6,7-diethyl-1,2	900	""	J	Z			900	UG/KG		TIC
SS107294	P7	SS00124EG	RNS	NITROBENZENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	NITROBENZENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	NITROBENZENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	NITROBENZENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	NITROBENZENE	680	680	U	V			340	UG/KG	330	
SS106094	V6	SS00112EG	REAL	NITROBENZENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	NITROBENZENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	NITROBENZENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	NITROBENZENE	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	NITROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	NITROBENZENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	NITROBENZENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	NITROBENZENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	NITROBENZENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	NITROBENZENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	NITROBENZENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	NITROBENZENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	NITROBENZENE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	NITROBENZENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	NITROBENZENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	NITROBENZENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	NITROBENZENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	NITROBENZENE-D5	51	""		Z			51	%REC	10	SUR
SS107094	D5	SS00122EG	REAL	NITROBENZENE-D5	66	""		Z			66	%REC	330	SUR
SS107294	P7	SS00125EG	REAL	NITROBENZENE-D5	75	""		Z		52	75	%REC	330	SUR
SS106394	P4	SS00115EG	REAL	NITROBENZENE-D5	76	""		Z			76	%REC	330	SUR

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105794	V3	SS00109EG	REAL	NITROBENZENE-D5	76	""		Z			76	%REC	330	SUR
SS106994	D4	SS00121EG	REAL	NITROBENZENE-D5	77	""		Z			77	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	NITROBENZENE-D5	79	""		Y			79	%REC	330	SUR
SS106094	V6	SS00112EG	REAL	NITROBENZENE-D5	82	""		Z			82	%REC	330	SUR
SS106194	V7	SS00113EG	REAL	NITROBENZENE-D5	82	""		Z			82	%REC	330	SUR
SS105894	V4	SS00110EG	REAL	NITROBENZENE-D5	83	""		Z			83	%REC	330	SUR
SS106894	P2	SS00120EG	REAL	NITROBENZENE-D5	83	""		Z			83	%REC	330	SUR
SS106294	D6	SS00114EG	REAL	NITROBENZENE-D5	83	""		Z			83	%REC	330	SUR
SS105594	V2	SS00107EG	REAL	NITROBENZENE-D5	84	""		Z			84	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	NITROBENZENE-D5	84	""		Y			84	%REC	330	SUR
SS107294	P7	SS00103EG	DUP	NITROBENZENE-D5	84	""		Z			84	%REC	330	SUR
SS105694	D3	SS00108EG	REAL	NITROBENZENE-D5	84	""		Z			84	%REC	330	SUR
SS105494	D1	SS00106EG	REAL	NITROBENZENE-D5	85	""		Z			85	%REC	330	SUR
SS106594	P3	SS00117EG	REAL	NITROBENZENE-D5	85	""		Z			85	%REC	330	SUR
SS105394	D2	SS00105EG	REAL	NITROBENZENE-D5	85	""		Z			85	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	NITROBENZENE-D5	86	""		Z		52	86	%REC	330	SUR
SS106694	V1	SS00118EG	REAL	NITROBENZENE-D5	87	""		Z			87	%REC	330	SUR
SS106794	P1	SS00119EG	REAL	NITROBENZENE-D5	88	""		Z			88	%REC	330	SUR
SS105994	V5	SS00111EG	REAL	NITROBENZENE-D5	88	""		Z			88	%REC	330	SUR
SS106494	P5	SS00116EG	REAL	NITROBENZENE-D5	93	""		Z			93	%REC	330	SUR
SS107294	P7	SS00124EG	RNS	o-FLUOROPHENOL	50	""		Z			50	%REC	10	SUR
SS107094	D5	SS00122EG	REAL	o-FLUOROPHENOL	52	""		Z			52	%REC	330	SUR
SS105494	D1	SS00106EG	REAL	o-FLUOROPHENOL	63	""		Z			63	%REC	330	SUR
SS106394	P4	SS00115EG	REAL	o-FLUOROPHENOL	64	""		Z			64	%REC	330	SUR
SS105394	D2	SS00105EG	REAL	o-FLUOROPHENOL	64	""		Z			64	%REC	330	SUR
SS107294	P7	SS00103EG	DUP	o-FLUOROPHENOL	64	""		Z			64	%REC	330	SUR
SS105794	V3	SS00109EG	REAL	o-FLUOROPHENOL	67	""		Z			67	%REC	330	SUR
SS106994	D4	SS00121EG	REAL	o-FLUOROPHENOL	69	""		Z			69	%REC	330	SUR
SS106194	V7	SS00113EG	REAL	o-FLUOROPHENOL	69	""		Z			69	%REC	330	SUR
SS106294	D6	SS00114EG	REAL	o-FLUOROPHENOL	72	""		Z			72	%REC	330	SUR
SS107294	P7	SS00125EG	REAL	o-FLUOROPHENOL	74	""		Z		52	74	%REC	330	SUR
SS106594	P3	SS00117EG	REAL	o-FLUOROPHENOL	75	""		Z			75	%REC	330	SUR
SS106894	P2	SS00120EG	REAL	o-FLUOROPHENOL	75	""		Z			75	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	o-FLUOROPHENOL	76	""		Y			76	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	o-FLUOROPHENOL	77	""		Y			77	%REC	330	SUR
SS105694	D3	SS00108EG	REAL	o-FLUOROPHENOL	77	""		Z			77	%REC	330	SUR
SS105894	V4	SS00110EG	REAL	o-FLUOROPHENOL	78	""		Z			78	%REC	330	SUR
SS105594	V2	SS00107EG	REAL	o-FLUOROPHENOL	78	""		Z			78	%REC	330	SUR
SS105994	V5	SS00111EG	REAL	o-FLUOROPHENOL	78	""		Z			78	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	o-FLUOROPHENOL	80	""		Z		52	80	%REC	330	SUR
SS106494	P5	SS00116EG	REAL	o-FLUOROPHENOL	81	""		Z			81	%REC	330	SUR

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106794	P1	SS00119EG	REAL	o-FLUOROPHENOL	81	""		Z			81	%REC	330	SUR
SS106694	V1	SS00118EG	REAL	o-FLUOROPHENOL	81	""		Z			81	%REC	330	SUR
SS106094	V6	SS00112EG	REAL	o-FLUOROPHENOL	81	""		Z			81	%REC	330	SUR
SS107294	P7	SS00124EG	RNS	p-BROMODIPHENYL ETHER	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	p-BROMODIPHENYL ETHER	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	p-BROMODIPHENYL ETHER	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	p-BROMODIPHENYL ETHER	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	p-BROMODIPHENYL ETHER	680	680	U	V			340	UG/KG	330	
SS106594	P3	SS00117EG	REAL	p-BROMODIPHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	p-BROMODIPHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	p-BROMODIPHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	p-BROMODIPHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	p-BROMODIPHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	p-BROMODIPHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	p-BROMODIPHENYL ETHER	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	p-BROMODIPHENYL ETHER	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	p-BROMODIPHENYL ETHER	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	p-BROMODIPHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	p-BROMODIPHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	p-BROMODIPHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	p-BROMODIPHENYL ETHER	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	p-BROMODIPHENYL ETHER	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	p-BROMODIPHENYL ETHER	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	p-BROMODIPHENYL ETHER	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	p-BROMODIPHENYL ETHER	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	PENTACHLOROPHENOL	50	50	U	V			25	UG/L	50	
SS105494	D1	SS00106EG	REAL	PENTACHLOROPHENOL	3300	3300	U	V			1650	UG/KG	1600	
SS106494	P5	SS00116EG	REAL	PENTACHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106594	P3	SS00117EG	REAL	PENTACHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106694	V1	SS00118EG	REAL	PENTACHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS106094	V6	SS00112EG	REAL	PENTACHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107094	D5	SS00122EG	REAL	PENTACHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS105394	D2	SS00105EG	REAL	PENTACHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS107194	P6	SS00123EG	REAL	PENTACHLOROPHENOL	3400	3400	U	V			1700	UG/KG	1600	
SS105594	V2	SS00107EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105994	V5	SS00111EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106194	V7	SS00113EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106394	P4	SS00115EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105894	V4	SS00110EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106894	P2	SS00120EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS107294	P7	SS00103EG	DUP	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS107294	P7	SS00125EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS106794	P1	SS00119EG	REAL	PENTACHLOROPHENOL	3500	3500	U	V			1750	UG/KG	1600	
SS105794	V3	SS00109EG	REAL	PENTACHLOROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS105694	D3	SS00108EG	REAL	PENTACHLOROPHENOL	3600	3600	U	V			1800	UG/KG	1600	
SS106294	D6	SS00114EG	REAL	PENTACHLOROPHENOL	3700	3700	U	V			1850	UG/KG	1600	
SS106994	D4	SS00121EG	REAL	PENTACHLOROPHENOL	3800	3800	U	V			1900	UG/KG	1600	
SS107294	P7	SS00124EG	RNS	PHENANTHRENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	PHENANTHRENE	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	PHENANTHRENE	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	PHENANTHRENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	PHENANTHRENE	680	680	U	V			340	UG/KG	330	
SS106894	P2	SS00120EG	REAL	PHENANTHRENE	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	PHENANTHRENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	PHENANTHRENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	PHENANTHRENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	PHENANTHRENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	PHENANTHRENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	PHENANTHRENE	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	PHENANTHRENE	700	700	U	V			350	UG/KG	330	
SS105894	V4	SS00110EG	REAL	PHENANTHRENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	PHENANTHRENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	PHENANTHRENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	PHENANTHRENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	PHENANTHRENE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	PHENANTHRENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	PHENANTHRENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	PHENANTHRENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	PHENANTHRENE	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	PHENOL	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	PHENOL	670	670	U	V			335	UG/KG	330	
SS105394	D2	SS00105EG	REAL	PHENOL	680	680	U	V			340	UG/KG	330	
SS107194	P6	SS00123EG	REAL	PHENOL	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	PHENOL	680	680	U	V			340	UG/KG	330	
SS107294	P7	SS00103EG	DUP	PHENOL	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	PHENOL	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	PHENOL	690	690	U	V			345	UG/KG	330	
SS106494	P5	SS00116EG	REAL	PHENOL	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	PHENOL	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	PHENOL	690	690	U	V			345	UG/KG	330	
SS106894	P2	SS00120EG	REAL	PHENOL	690	690	U	V			345	UG/KG	330	
SS106394	P4	SS00115EG	REAL	PHENOL	700	700	U	V			350	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105894	V4	SS00110EG	REAL	PHENOL	700	700	U	V			350	UG/KG	330	
SS106794	P1	SS00119EG	REAL	PHENOL	710	710	U	V			355	UG/KG	330	
SS105594	V2	SS00107EG	REAL	PHENOL	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	PHENOL	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	PHENOL	710	710	U	V			355	UG/KG	330	
SS106294	D6	SS00114EG	REAL	PHENOL	730	730	U	V			365	UG/KG	330	
SS105794	V3	SS00109EG	REAL	PHENOL	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	PHENOL	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	PHENOL	760	760	U	V			380	UG/KG	330	
SS107294	P7	SS00124EG	RNS	PHENOL-D5	50	""		Z			50	%REC	10	SUR
SS107094	D5	SS00122EG	REAL	PHENOL-D5	62	""		Z			62	%REC	330	SUR
SS106994	D4	SS00121EG	REAL	PHENOL-D5	72	""		Z			72	%REC	330	SUR
SS105494	D1	SS00106EG	REAL	PHENOL-D5	73	""		Z			73	%REC	330	SUR
SS105394	D2	SS00105EG	REAL	PHENOL-D5	74	""		Z			74	%REC	330	SUR
SS107294	P7	SS00125EG	REAL	PHENOL-D5	74	""		Z		52	74	%REC	330	SUR
SS106294	D6	SS00114EG	REAL	PHENOL-D5	75	""		Z			75	%REC	330	SUR
SS106394	P4	SS00115EG	REAL	PHENOL-D5	75	""		Z			75	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	PHENOL-D5	76	""		Y			76	%REC	330	SUR
SS106894	P2	SS00120EG	REAL	PHENOL-D5	76	""		Z			76	%REC	330	SUR
SS105694	D3	SS00108EG	REAL	PHENOL-D5	76	""		Z			76	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	PHENOL-D5	77	""		Y			77	%REC	330	SUR
SS106194	V7	SS00113EG	REAL	PHENOL-D5	77	""		Z			77	%REC	330	SUR
SS107294	P7	SS00103EG	DUP	PHENOL-D5	77	""		Z			77	%REC	330	SUR
SS105794	V3	SS00109EG	REAL	PHENOL-D5	78	""		Z			78	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	PHENOL-D5	78	""		Z		52	78	%REC	330	SUR
SS105994	V5	SS00111EG	REAL	PHENOL-D5	79	""		Z			79	%REC	330	SUR
SS105594	V2	SS00107EG	REAL	PHENOL-D5	79	""		Z			79	%REC	330	SUR
SS106594	P3	SS00117EG	REAL	PHENOL-D5	80	""		Z			80	%REC	330	SUR
SS105894	V4	SS00110EG	REAL	PHENOL-D5	81	""		Z			81	%REC	330	SUR
SS106694	V1	SS00118EG	REAL	PHENOL-D5	81	""		Z			81	%REC	330	SUR
SS106494	P5	SS00116EG	REAL	PHENOL-D5	82	""		Z			82	%REC	330	SUR
SS106794	P1	SS00119EG	REAL	PHENOL-D5	82	""		Z			82	%REC	330	SUR
SS106094	V6	SS00112EG	REAL	PHENOL-D5	83	""		Z			83	%REC	330	SUR
SS105394	D2	SS00105EG	REAL	PHOSPHONIC ACID, DIOCTADECYL	470	""	J	Z			470	UG/KG		TIC
SS107294	P7	SS00124EG	RNS	PYRENE	10	10	U	V			5	UG/L	10	
SS105494	D1	SS00106EG	REAL	PYRENE	670	670	U	V			335	UG/KG	330	
SS107194	P6	SS00123EG	REAL	PYRENE	680	680	U	V			340	UG/KG	330	
SS107094	D5	SS00122EG	REAL	PYRENE	680	680	U	V			340	UG/KG	330	
SS105394	D2	SS00105EG	REAL	PYRENE	680	680	U	V			340	UG/KG	330	
SS106494	P5	SS00116EG	REAL	PYRENE	690	690	U	V			345	UG/KG	330	
SS106594	P3	SS00117EG	REAL	PYRENE	690	690	U	V			345	UG/KG	330	

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106894	P2	SS00120EG	REAL	PYRENE	690	690	U	V			345	UG/KG	330	
SS106094	V6	SS00112EG	REAL	PYRENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00103EG	DUP	PYRENE	690	690	U	V			345	UG/KG	330	
SS107294	P7	SS00125EG	REAL	PYRENE	690	690	U	V			345	UG/KG	330	
SS106694	V1	SS00118EG	REAL	PYRENE	690	690	U	V			345	UG/KG	330	
SS105894	V4	SS00110EG	REAL	PYRENE	700	700	U	V			350	UG/KG	330	
SS106394	P4	SS00115EG	REAL	PYRENE	700	700	U	V			350	UG/KG	330	
SS105594	V2	SS00107EG	REAL	PYRENE	710	710	U	V			355	UG/KG	330	
SS105994	V5	SS00111EG	REAL	PYRENE	710	710	U	V			355	UG/KG	330	
SS106194	V7	SS00113EG	REAL	PYRENE	710	710	U	V			355	UG/KG	330	
SS106794	P1	SS00119EG	REAL	PYRENE	710	710	U	V			355	UG/KG	330	
SS105794	V3	SS00109EG	REAL	PYRENE	730	730	U	V			365	UG/KG	330	
SS105694	D3	SS00108EG	REAL	PYRENE	730	730	U	V			365	UG/KG	330	
SS106294	D6	SS00114EG	REAL	PYRENE	730	730	U	V			365	UG/KG	330	
SS106994	D4	SS00121EG	REAL	PYRENE	760	760	U	V			380	UG/KG	330	
SS107094	D5	SS00122EG	REAL	TERPHENYL-D14	77	""		Z			77	%REC	330	SUR
SS107294	P7	SS00124EG	RNS	TERPHENYL-D14	83	""		Z			83	%REC	10	SUR
SS106994	D4	SS00121EG	REAL	TERPHENYL-D14	88	""		Z			88	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	TERPHENYL-D14	90	""		Y			90	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	TERPHENYL-D14	92	""		Y			92	%REC	330	SUR
SS105594	V2	SS00107EG	REAL	TERPHENYL-D14	93	""		Z			93	%REC	330	SUR
SS105694	D3	SS00108EG	REAL	TERPHENYL-D14	93	""		Z			93	%REC	330	SUR
SS106294	D6	SS00114EG	REAL	TERPHENYL-D14	94	""		Z			94	%REC	330	SUR
SS106894	P2	SS00120EG	REAL	TERPHENYL-D14	94	""		Z			94	%REC	330	SUR
SS105394	D2	SS00105EG	REAL	TERPHENYL-D14	95	""		Z			95	%REC	330	SUR
SS105994	V5	SS00111EG	REAL	TERPHENYL-D14	96	""		Z			96	%REC	330	SUR
SS107294	P7	SS00103EG	DUP	TERPHENYL-D14	96	""		Z			96	%REC	330	SUR
SS107194	P6	SS00123EG	REAL	TERPHENYL-D14	96	""		Z		52	96	%REC	330	SUR
SS105494	D1	SS00106EG	REAL	TERPHENYL-D14	97	""		Z			97	%REC	330	SUR
SS106194	V7	SS00113EG	REAL	TERPHENYL-D14	98	""		Z			98	%REC	330	SUR
SS106594	P3	SS00117EG	REAL	TERPHENYL-D14	98	""		Z			98	%REC	330	SUR
SS106094	V6	SS00112EG	REAL	TERPHENYL-D14	99	""		Z			99	%REC	330	SUR
SS107294	P7	SS00125EG	REAL	TERPHENYL-D14	99	""		Z		52	99	%REC	330	SUR
SS105894	V4	SS00110EG	REAL	TERPHENYL-D14	101	""		Z			101	%REC	330	SUR
SS106494	P5	SS00116EG	REAL	TERPHENYL-D14	101	""		Z			101	%REC	330	SUR
SS106794	P1	SS00119EG	REAL	TERPHENYL-D14	102	""		Z			102	%REC	330	SUR
SS106694	V1	SS00118EG	REAL	TERPHENYL-D14	102	""		Z			102	%REC	330	SUR
SS106394	P4	SS00115EG	REAL	TERPHENYL-D14	104	""		Z			104	%REC	330	SUR
SS105794	V3	SS00109EG	REAL	TERPHENYL-D14	108	""		Z			108	%REC	330	SUR
SS107294	P7	SS00125EG	REAL	Unknown	290	""	J	Z			290	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	300	""	J	Z			300	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105394	D2	SS00105EG	REAL	Unknown	300	""	J	Z			300	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	310	""	J	Z			310	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	310	""	J	Z			310	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown	310	""	J	Z			310	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	320	""	J	Z			320	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	320	""	J	Z			320	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown	330	""	J	Z			330	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	330	""	J	Z			330	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	330	""	J	Z			330	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	330	""	J	Z			330	UG/KG		TIC
SS107094	D5	SS00122EG	REAL	Unknown	340	""	J	Z			340	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	340	""	J	Z			340	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	340	""	J	Z			340	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	350	""	J	Z			350	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	350	""	J	Z			350	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	350	""	J	Z			350	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	350	""	J	Z			350	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	350	""	J	Z			350	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	350	""	J	Z			350	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown	350	""	J	Z			350	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	350	""	J	Z			350	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	370	""	J	Z			370	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown	370	""	J	Z			370	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	380	""	J	Z			380	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	380	""	J	Z			380	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown	390	""	J	Z			390	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown	390	""	J	Z			390	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown	390	""	J	Z			390	UG/KG		TIC
SS107194	P6	SS00123EG	REAL	Unknown	400	""	J	Z			400	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	410	""	J	Z			410	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown	410	""	J	Z			410	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	420	""	J	Z			420	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	420	""	J	Z			420	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	430	""	J	Z			430	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	430	""	J	Z			430	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	430	""	J	Z			430	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	430	""	J	Z			430	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown	430	""	J	Z			430	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	430	""	J	Z			430	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	440	""	J	Z			440	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	440	""	J	Z			440	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105494	D1	SS00106EG	REAL	Unknown	440	""	J	Z			440	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	440	""	J	Z			440	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	450	""	J	Z			450	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	450	""	J	Z			450	UG/KG		TIC
SS107194	P6	SS00123EG	REAL	Unknown	450	""	J	Z			450	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	460	""	J	Z			460	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	460	""	J	Z			460	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	460	""	J	Z			460	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	460	""	J	Z			460	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	460	""	J	Z			460	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	470	""	J	Z			470	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	470	""	J	Z			470	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	470	""	J	Z			470	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	480	""	J	Z			480	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	480	""	J	Z			480	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	490	""	J	Z			490	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	490	""	J	Z			490	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	500	""	J	Z			500	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	500	""	J	Z			500	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	500	""	J	Z			500	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	500	""	J	Z			500	UG/KG		TIC
SS107194	P6	SS00123EG	REAL	Unknown	500	""	J	Z			500	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	500	""	J	Z			500	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	510	""	J	Z			510	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	520	""	J	Z			520	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	520	""	J	Z			520	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	520	""	J	Z			520	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	520	""	J	Z			520	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	530	""	J	Z			530	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown	530	""	J	Z			530	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown	530	""	J	Z			530	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	540	""	J	Z			540	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	540	""	J	Z			540	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	540	""	J	Z			540	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	550	""	J	Z			550	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	560	""	J	Z			560	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	560	""	J	Z			560	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	570	""	J	Z			570	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	590	""	J	Z			590	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	590	""	J	Z			590	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	590	""	J	Z			590	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105994	V5	SS00111EG	REAL	Unknown	590	""	J	Z			590	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	600	""	J	Z			600	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	600	""	J	Z			600	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	600	""	J	Z			600	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	600	""	J	Z			600	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	610	""	J	Z			610	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	610	""	J	Z			610	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	610	""	J	Z			610	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	620	""	J	Z			620	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	630	""	J	Z			630	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	650	""	J	Z			650	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	650	""	J	Z			650	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	660	""	J	Z			660	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown	660	""	J	Z			660	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	660	""	J	Z			660	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	670	""	J	Z			670	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	690	""	J	Z			690	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	700	""	J	Z			700	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	710	""	J	Z			710	UG/KG		TIC
SS107194	P6	SS00123EG	REAL	Unknown	720	""	J	Z			720	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	740	""	J	Z			740	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	780	""	J	Z			780	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	790	""	J	Z			790	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	790	""	J	Z			790	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	830	""	J	Z			830	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	840	""	J	Z			840	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	850	""	J	Z			850	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	870	""	J	Z			870	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	880	""	J	Z			880	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	890	""	J	Z			890	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	890	""	J	Z			890	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	920	""	J	Z			920	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	940	""	J	Z			940	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	940	""	J	Z			940	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	960	""	J	Z			960	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	970	""	J	Z			970	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	980	""	J	Z			980	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	1000	""	J	Z			1000	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	1000	""	J	Z			1000	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	1000	""	J	Z			1000	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	1000	""	J	Z			1000	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105594	V2	SS00107EG	REAL	Unknown	1100	""	J	Z			1100	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown	1100	""	J	Z			1100	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	1100	""	J	Z			1100	UG/KG		TIC
SS107094	D5	SS00122EG	REAL	Unknown	1100	""	J	Z			1100	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	1200	""	JB	Z		52	1200	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	1200	""	J	Z			1200	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	1200	""	JB	Z		52	1200	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS107194	P6	SS00123EG	REAL	Unknown	1200	""	JB	Z		52	1200	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown	1200	""	JB	Z		52	1200	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS105494	D1	SS00106EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	1200	""	J	Z			1200	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	1300	""	J	Z			1300	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	1300	""	J	Z			1300	UG/KG		TIC
SS107094	D5	SS00122EG	REAL	Unknown	1300	""	JB	Z		52	1300	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	1300	""	J	Z			1300	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	1300	""	JB	Z		52	1300	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	1300	""	J	Z			1300	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	1300	""	J	Z			1300	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown	1300	""	J	Z			1300	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	1300	""	JB	Z		52	1300	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	1300	""	JB	Z		52	1300	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown	1300	""	J	Z			1300	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown	1300	""	JB	Z		52	1300	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown	1400	""	J	Z			1400	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	1400	""	JB	Z	52		1400	UG/KG		TIC
SS105494	D1	SS00106EG	REAL	Unknown	1400	""	JB	Z		52	1400	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown	1400	""	JB	Z		52	1400	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	1400	""	JB	Z		52	1400	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	1400	""	J	Z			1400	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	1400	""	JB	Z		52	1400	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	1400	""	JB	Z		52	1400	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	1400	""	J	Z			1400	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	1500	""	J	Z			1500	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	1500	""	J	Z			1500	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown	1500	""	J	Z			1500	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS105894	V4	SS00110EG	REAL	Unknown	1500	""	JB	Z		52	1500	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	1500	""	J	Z			1500	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	1500	""	J	Z			1500	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown	1500	""	JB	Z		52	1500	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	1500	""	J	Z			1500	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown	1600	""	JB	Z		52	1600	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown	1600	""	JB	Z		52	1600	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	1600	""	J	Z			1600	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown	1600	""	J	Z			1600	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	1600	""	JB	Z		52	1600	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	1700	""	J	Z			1700	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown	1700	""	J	Z			1700	UG/KG		TIC
SS107194	P6	SS00123EG	REAL	Unknown	1700	""	J	Z			1700	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	1800	""	J	Z			1800	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown	1800	""	J	Z			1800	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	1900	""	J	Z			1900	UG/KG		TIC
SS107194	P6	SS00123EG	REAL	Unknown	2000	""	J	Z			2000	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	2200	""	J	Z			2200	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	2400	""	J	Z			2400	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	2600	""	J	Z			2600	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown	3200	""	J	Z			3200	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown	3300	""	J	Z			3300	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown	3400	""	J	Z			3400	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	3600	""	J	Z			3600	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	3600	""	J	Z			3600	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	3700	""	J	Z			3700	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown	4200	""	J	Z			4200	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown	4400	""	J	Z			4400	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	4400	""	J	Z			4400	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	5800	""	J	Z			5800	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown	8000	""	J	Z			8000	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown	9700	""	J	Z			9700	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown	9800	""	J	Z			9800	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	UNKNOWN	12000	""	J	Z			12000	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown	14000	""	J	Z			14000	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown	16000	""	J	Z			16000	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown ALKANE	310	""	J	Z			310	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	320	""	J	Z			320	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown ALKANE	330	""	J	Z			330	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown ALKANE	330	""	J	Z			330	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown ALKANE	340	""	J	Z			340	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	350	""	J	Z			350	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown ALKANE	350	""	J	Z			350	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown ALKANE	360	""	J	Z			360	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown ALKANE	370	""	J	Z			370	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	380	""	J	Z			380	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown ALKANE	380	""	J	Z			380	UG/KG		TIC
SS107094	D5	SS00122EG	REAL	Unknown ALKANE	390	""	J	Z			390	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown ALKANE	400	""	J	Z			400	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown ALKANE	410	""	J	Z			410	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	430	""	J	Z			430	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	430	""	J	Z			430	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	440	""	J	Z			440	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown ALKANE	450	""	J	Z			450	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	450	""	J	Z			450	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown ALKANE	450	""	J	Z			450	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	450	""	J	Z			450	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown ALKANE	450	""	J	Z			450	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown ALKANE	460	""	J	Z			460	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown ALKANE	490	""	J	Z			490	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown ALKANE	490	""	J	Z			490	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown ALKANE	490	""	J	Z			490	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown ALKANE	490	""	J	Z			490	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	500	""	J	Z			500	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown ALKANE	510	""	J	Z			510	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	520	""	J	Z			520	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown ALKANE	570	""	J	Z			570	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown ALKANE	570	""	J	Z			570	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown ALKANE	600	""	J	Z			600	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	610	""	J	Z			610	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown ALKANE	610	""	J	Z			610	UG/KG		TIC
SS107094	D5	SS00122EG	REAL	Unknown ALKANE	610	""	J	Z			610	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown ALKANE	620	""	J	Z			620	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown ALKANE	620	""	J	Z			620	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	630	""	J	Z			630	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown ALKANE	650	""	J	Z			650	UG/KG		TIC
SS107094	D5	SS00122EG	REAL	Unknown ALKANE	650	""	J	Z			650	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown ALKANE	650	""	J	Z			650	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown ALKANE	660	""	J	Z			660	UG/KG		TIC
SS105494	D1	SS00106EG	REAL	Unknown ALKANE	660	""	J	Z			660	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown ALKANE	680	""	J	Z			680	UG/KG		TIC
SS105494	D1	SS00106EG	REAL	Unknown ALKANE	690	""	J	Z			690	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106794	P1	SS00119EG	REAL	Unknown ALKANE	690	""	J	Z			690	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown ALKANE	700	""	J	Z			700	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown ALKANE	700	""	J	Z			700	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown ALKANE	720	""	J	Z			720	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown ALKANE	730	""	J	Z			730	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown ALKANE	740	""	J	Z			740	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown ALKANE	750	""	J	Z			750	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown ALKANE	750	""	J	Z			750	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	800	""	J	Z			800	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown ALKANE	870	""	J	Z			870	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	870	""	J	Z			870	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown ALKANE	870	""	J	Z			870	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown ALKANE	920	""	J	Z			920	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	950	""	J	Z			950	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown ALKANE	950	""	J	Z			950	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	960	""	J	Z			960	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown ALKANE	980	""	J	Z			980	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown ALKANE	1000	""	J	Z			1000	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown ALKANE	1000	""	J	Z			1000	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown ALKANE	1100	""	J	Z			1100	UG/KG		TIC
SS107294	P7	SS00125EG	REAL	Unknown ALKANE	1100	""	J	Z			1100	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown ALKANE	1100	""	J	Z			1100	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	1200	""	J	Z			1200	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	1200	""	J	Z			1200	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	1200	""	J	Z			1200	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown ALKANE	1200	""	J	Z			1200	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown ALKANE	1200	""	J	Z			1200	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	1300	""	J	Z			1300	UG/KG		TIC
SS105494	D1	SS00106EG	REAL	Unknown ALKANE	1300	""	J	Z			1300	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown ALKANE	1300	""	J	Z			1300	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown ALKANE	1300	""	J	Z			1300	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	1300	""	J	Z			1300	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	1400	""	J	Z			1400	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown ALKANE	1400	""	J	Z			1400	UG/KG		TIC
SS106994	D4	SS00121EG	REAL	Unknown ALKANE	1400	""	J	Z			1400	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown ALKANE	1500	""	J	Z			1500	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	1500	""	J	Z			1500	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown ALKANE	1500	""	J	Z			1500	UG/KG		TIC
SS106194	V7	SS00113EG	REAL	Unknown ALKANE	1500	""	J	Z			1500	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown ALKANE	1600	""	J	Z			1600	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown ALKANE	1600	""	J	Z			1600	UG/KG		TIC

SEMI-VOLATILE COMPOUNDS: RAW DATA

LOCATION	SITE	SAMPLE#	QC CODE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R4	RESULT2	UNIT	CRDL	TYPE2
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	1600	""	J	Z			1600	UG/KG		TIC
SS107294	P7	SS00103EG	DUP	Unknown ALKANE	1700	""	J	Z			1700	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	1700	""	J	Z			1700	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown ALKANE	1700	""	J	Z			1700	UG/KG		TIC
SS105594	V2	SS00107EG	REAL	Unknown ALKANE	1700	""	J	Z			1700	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown ALKANE	1700	""	J	Z			1700	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	1800	""	J	Z			1800	UG/KG		TIC
SS105994	V5	SS00111EG	REAL	Unknown ALKANE	1900	""	J	Z			1900	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown ALKANE	2000	""	J	Z			2000	UG/KG		TIC
SS106894	P2	SS00120EG	REAL	Unknown ALKANE	2000	""	J	Z			2000	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	2100	""	J	Z			2100	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown ALKANE	2100	""	J	Z			2100	UG/KG		TIC
SS105394	D2	SS00105EG	REAL	Unknown ALKANE	2200	""	J	Z			2200	UG/KG		TIC
SS105894	V4	SS00110EG	REAL	Unknown ALKANE	2200	""	J	Z			2200	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	2200	""	J	Z			2200	UG/KG		TIC
SS105694	D3	SS00108EG	REAL	Unknown ALKANE	2300	""	J	Z			2300	UG/KG		TIC
SS106594	P3	SS00117EG	REAL	Unknown ALKANE	2700	""	J	Z			2700	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown ALKANE	2800	""	J	Z			2800	UG/KG		TIC
SS106794	P1	SS00119EG	REAL	Unknown ALKANE	2800	""	J	Z			2800	UG/KG		TIC
SS106094	V6	SS00112EG	REAL	Unknown ALKANE	3000	""	J	Z			3000	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown ALKANE	3000	""	J	Z			3000	UG/KG		TIC
SS106394	P4	SS00115EG	REAL	Unknown ALKANE	3100	""	J	Z			3100	UG/KG		TIC
SS105794	V3	SS00109EG	REAL	Unknown ALKANE	3700	""	J	Z			3700	UG/KG		TIC
SS106294	D6	SS00114EG	REAL	Unknown ALKANE	3700	""	J	Z			3700	UG/KG		TIC
SS106494	P5	SS00116EG	REAL	Unknown ALKANE	3900	""	J	Z			3900	UG/KG		TIC
SS106694	V1	SS00118EG	REAL	Unknown ALKANE	8300	""	J	Z			8300	UG/KG		TIC

PESTICIDES AND PCBS

This section contains the raw data spreadsheets for pesticide and PCB compounds. They are organized as indicated in the introduction of Appendix B, except the site, IDL, unit and CRDL columns have been eliminated. There is also only one result column.

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS105394	SS00105EG	REAL	TRG	4,4'-DDD	33	U	V			
SS105494	SS00106EG	REAL	TRG	4,4'-DDD	32	U	V			
SS105594	SS00107EG	REAL	TRG	4,4'-DDD	34	U	V			
SS105694	SS00108EG	REAL	TRG	4,4'-DDD	35	U	V			
SS105794	SS00109EG	REAL	TRG	4,4'-DDD	35	U	V			
SS105894	SS00110EG	REAL	TRG	4,4'-DDD	34	U	V			
SS105994	SS00111EG	REAL	TRG	4,4'-DDD	34	U	V			
SS106094	SS00112EG	REAL	TRG	4,4'-DDD	33	U	V			
SS106194	SS00113EG	REAL	TRG	4,4'-DDD	34	U	V			
SS106294	SS00114EG	REAL	TRG	4,4'-DDD	36	U	V			
SS106394	SS00115EG	REAL	TRG	4,4'-DDD	34	U	V			
SS106494	SS00116EG	REAL	TRG	4,4'-DDD	33	U	V			
SS106594	SS00117EG	REAL	TRG	4,4'-DDD	33	U	V			
SS106694	SS00118EG	REAL	TRG	4,4'-DDD	33	U	V			
SS106794	SS00119EG	REAL	TRG	4,4'-DDD	34	U	V			
SS106894	SS00120EG	REAL	TRG	4,4'-DDD	34	U	V			
SS106994	SS00121EG	REAL	TRG	4,4'-DDD	37	U	V			
SS107094	SS00122EG	REAL	TRG	4,4'-DDD	33	U	V			
SS107194	SS00123EG	REAL	TRG	4,4'-DDD	33	U	V			
SS107294	SS00103EG	DUP	TRG	4,4'-DDD	34	U	V			
SS107294	SS00125EG	REAL	TRG	4,4'-DDD	34	U	V			
SS107294	SS00124EG	RNS	TRG	4,4'-DDD	0.1	U	V			
SS105394	SS00105EG	REAL	TRG	4,4'-DDE	33	U	V			
SS105494	SS00106EG	REAL	TRG	4,4'-DDE	32	U	V			
SS105594	SS00107EG	REAL	TRG	4,4'-DDE	34	U	V			
SS105694	SS00108EG	REAL	TRG	4,4'-DDE	35	U	V			
SS105794	SS00109EG	REAL	TRG	4,4'-DDE	35	U	V			
SS105894	SS00110EG	REAL	TRG	4,4'-DDE	34	U	V			
SS105994	SS00111EG	REAL	TRG	4,4'-DDE	34	U	V			
SS106094	SS00112EG	REAL	TRG	4,4'-DDE	33	U	V			
SS106194	SS00113EG	REAL	TRG	4,4'-DDE	34	U	V			
SS106294	SS00114EG	REAL	TRG	4,4'-DDE	36	U	V			
SS106394	SS00115EG	REAL	TRG	4,4'-DDE	34	U	V			
SS106494	SS00116EG	REAL	TRG	4,4'-DDE	33	U	V			
SS106594	SS00117EG	REAL	TRG	4,4'-DDE	33	U	V			
SS106694	SS00118EG	REAL	TRG	4,4'-DDE	33	U	V			
SS106794	SS00119EG	REAL	TRG	4,4'-DDE	34	U	V			
SS106894	SS00120EG	REAL	TRG	4,4'-DDE	34	U	V			
SS106994	SS00121EG	REAL	TRG	4,4'-DDE	37	U	V			
SS107094	SS00122EG	REAL	TRG	4,4'-DDE	33	U	V			
SS107194	SS00123EG	REAL	TRG	4,4'-DDE	33	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS107294	SS00103EG	DUP	TRG	4,4'-DDE	34	U	V			
SS107294	SS00125EG	REAL	TRG	4,4'-DDE	34	U	V			
SS107294	SS00124EG	RNS	TRG	4,4'-DDE	0.1	U	V			
SS105394	SS00105EG	REAL	TRG	4,4'-DDT	33	U	V			
SS105494	SS00106EG	REAL	TRG	4,4'-DDT	32	U	V			
SS105594	SS00107EG	REAL	TRG	4,4'-DDT	34	U	V			
SS105694	SS00108EG	REAL	TRG	4,4'-DDT	35	U	V			
SS105794	SS00109EG	REAL	TRG	4,4'-DDT	35	U	V			
SS105894	SS00110EG	REAL	TRG	4,4'-DDT	34	U	V			
SS105994	SS00111EG	REAL	TRG	4,4'-DDT	34	U	V			
SS106094	SS00112EG	REAL	TRG	4,4'-DDT	33	U	V			
SS106194	SS00113EG	REAL	TRG	4,4'-DDT	34	U	V			
SS106294	SS00114EG	REAL	TRG	4,4'-DDT	36	U	V			
SS106394	SS00115EG	REAL	TRG	4,4'-DDT	34	U	V			
SS106494	SS00116EG	REAL	TRG	4,4'-DDT	33	U	V			
SS106594	SS00117EG	REAL	TRG	4,4'-DDT	33	U	V			
SS106694	SS00118EG	REAL	TRG	4,4'-DDT	33	U	V			
SS106794	SS00119EG	REAL	TRG	4,4'-DDT	34	U	V			
SS106894	SS00120EG	REAL	TRG	4,4'-DDT	34	U	V			
SS106994	SS00121EG	REAL	TRG	4,4'-DDT	37	U	V			
SS107094	SS00122EG	REAL	TRG	4,4'-DDT	33	U	V			
SS107194	SS00123EG	REAL	TRG	4,4'-DDT	33	U	V			
SS107294	SS00103EG	DUP	TRG	4,4'-DDT	34	U	V			
SS107294	SS00125EG	REAL	TRG	4,4'-DDT	34	U	V			
SS107294	SS00124EG	RNS	TRG	4,4'-DDT	0.1	U	V			
SS105394	SS00105EG	REAL	TRG	ALDRIN	16	U	V			
SS105494	SS00106EG	REAL	TRG	ALDRIN	16	U	V			
SS105594	SS00107EG	REAL	TRG	ALDRIN	17	U	V			
SS105694	SS00108EG	REAL	TRG	ALDRIN	18	U	V			
SS105794	SS00109EG	REAL	TRG	ALDRIN	17	U	V			
SS105894	SS00110EG	REAL	TRG	ALDRIN	17	U	V			
SS105994	SS00111EG	REAL	TRG	ALDRIN	17	U	V			
SS106094	SS00112EG	REAL	TRG	ALDRIN	17	U	V			
SS106194	SS00113EG	REAL	TRG	ALDRIN	17	U	V			
SS106294	SS00114EG	REAL	TRG	ALDRIN	18	U	V			
SS106394	SS00115EG	REAL	TRG	ALDRIN	17	U	V			
SS106494	SS00116EG	REAL	TRG	ALDRIN	17	U	V			
SS106594	SS00117EG	REAL	TRG	ALDRIN	17	U	V			
SS106694	SS00118EG	REAL	TRG	ALDRIN	17	U	V			
SS106794	SS00119EG	REAL	TRG	ALDRIN	17	U	V			
SS106894	SS00120EG	REAL	TRG	ALDRIN	17	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106994	SS00121EG	REAL	TRG	ALDRIN	18	U	V			
SS107094	SS00122EG	REAL	TRG	ALDRIN	17	U	V			
SS107194	SS00123EG	REAL	TRG	ALDRIN	17	U	V			
SS107294	SS00103EG	DUP	TRG	ALDRIN	17	U	V			
SS107294	SS00124EG	RNS	TRG	ALDRIN	0.05	U	V			
SS107294	SS00125EG	REAL	TRG	ALDRIN	17	U	V			
SS105394	SS00105EG	REAL	TRG	AROCLOR-1016	160	U	V			
SS105494	SS00106EG	REAL	TRG	AROCLOR-1016	160	U	V			
SS105594	SS00107EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS105694	SS00108EG	REAL	TRG	AROCLOR-1016	180	U	V			
SS105794	SS00109EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS105894	SS00110EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS105994	SS00111EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106094	SS00112EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106194	SS00113EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106294	SS00114EG	REAL	TRG	AROCLOR-1016	180	U	V			
SS106394	SS00115EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106494	SS00116EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106594	SS00117EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106694	SS00118EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106794	SS00119EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106894	SS00120EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS106994	SS00121EG	REAL	TRG	AROCLOR-1016	180	U	V			
SS107094	SS00122EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS107194	SS00123EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS107294	SS00103EG	DUP	TRG	AROCLOR-1016	170	U	V			
SS107294	SS00124EG	RNS	TRG	AROCLOR-1016	0.5	U	V			
SS107294	SS00125EG	REAL	TRG	AROCLOR-1016	170	U	V			
SS105394	SS00105EG	REAL	TRG	AROCLOR-1221	160	U	V			
SS105494	SS00106EG	REAL	TRG	AROCLOR-1221	160	U	V			
SS105594	SS00107EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS105694	SS00108EG	REAL	TRG	AROCLOR-1221	180	U	V			
SS105794	SS00109EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS105894	SS00110EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS105994	SS00111EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106094	SS00112EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106194	SS00113EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106294	SS00114EG	REAL	TRG	AROCLOR-1221	180	U	V			
SS106394	SS00115EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106494	SS00116EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106594	SS00117EG	REAL	TRG	AROCLOR-1221	170	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106694	SS00118EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106794	SS00119EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106894	SS00120EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS106994	SS00121EG	REAL	TRG	AROCLOR-1221	180	U	V			
SS107094	SS00122EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS107194	SS00123EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS107294	SS00103EG	DUP	TRG	AROCLOR-1221	170	U	V			
SS107294	SS00124EG	RNS	TRG	AROCLOR-1221	0.5	U	V			
SS107294	SS00125EG	REAL	TRG	AROCLOR-1221	170	U	V			
SS105394	SS00105EG	REAL	TRG	AROCLOR-1232	160	U	V			
SS105494	SS00106EG	REAL	TRG	AROCLOR-1232	160	U	V			
SS105594	SS00107EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS105694	SS00108EG	REAL	TRG	AROCLOR-1232	180	U	V			
SS105794	SS00109EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS105894	SS00110EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS105994	SS00111EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106094	SS00112EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106194	SS00113EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106294	SS00114EG	REAL	TRG	AROCLOR-1232	180	U	V			
SS106394	SS00115EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106494	SS00116EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106594	SS00117EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106694	SS00118EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106794	SS00119EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106894	SS00120EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS106994	SS00121EG	REAL	TRG	AROCLOR-1232	180	U	V			
SS107094	SS00122EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS107194	SS00123EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS107294	SS00103EG	DUP	TRG	AROCLOR-1232	170	U	V			
SS107294	SS00124EG	RNS	TRG	AROCLOR-1232	0.5	U	V			
SS107294	SS00125EG	REAL	TRG	AROCLOR-1232	170	U	V			
SS105394	SS00105EG	REAL	TRG	AROCLOR-1242	160	U	V			
SS105494	SS00106EG	REAL	TRG	AROCLOR-1242	160	U	V			
SS105594	SS00107EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS105694	SS00108EG	REAL	TRG	AROCLOR-1242	180	U	V			
SS105794	SS00109EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS105894	SS00110EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS105994	SS00111EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106094	SS00112EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106194	SS00113EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106294	SS00114EG	REAL	TRG	AROCLOR-1242	180	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106394	SS00115EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106494	SS00116EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106594	SS00117EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106694	SS00118EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106794	SS00119EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106894	SS00120EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS106994	SS00121EG	REAL	TRG	AROCLOR-1242	180	U	V			
SS107094	SS00122EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS107194	SS00123EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS107294	SS00103EG	DUP	TRG	AROCLOR-1242	170	U	V			
SS107294	SS00124EG	RNS	TRG	AROCLOR-1242	0.5	U	V			
SS107294	SS00125EG	REAL	TRG	AROCLOR-1242	170	U	V			
SS105394	SS00105EG	REAL	TRG	AROCLOR-1248	160	U	V			
SS105494	SS00106EG	REAL	TRG	AROCLOR-1248	160	U	V			
SS105594	SS00107EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS105694	SS00108EG	REAL	TRG	AROCLOR-1248	180	U	V			
SS105794	SS00109EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS105894	SS00110EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS105994	SS00111EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106094	SS00112EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106194	SS00113EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106294	SS00114EG	REAL	TRG	AROCLOR-1248	180	U	V			
SS106394	SS00115EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106494	SS00116EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106594	SS00117EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106694	SS00118EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106794	SS00119EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106894	SS00120EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS106994	SS00121EG	REAL	TRG	AROCLOR-1248	180	U	V			
SS107094	SS00122EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS107194	SS00123EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS107294	SS00103EG	DUP	TRG	AROCLOR-1248	170	U	V			
SS107294	SS00124EG	RNS	TRG	AROCLOR-1248	0.5	U	V			
SS107294	SS00125EG	REAL	TRG	AROCLOR-1248	170	U	V			
SS105394	SS00105EG	REAL	TRG	AROCLOR-1254	330	U	V			
SS105494	SS00106EG	REAL	TRG	AROCLOR-1254	320	U	V			
SS105594	SS00107EG	REAL	TRG	AROCLOR-1254	340	U	V			
SS105694	SS00108EG	REAL	TRG	AROCLOR-1254	350	U	V			
SS105794	SS00109EG	REAL	TRG	AROCLOR-1254	350	U	V			
SS105894	SS00110EG	REAL	TRG	AROCLOR-1254	340	U	V			
SS105994	SS00111EG	REAL	TRG	AROCLOR-1254	340	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106094	SS00112EG	REAL	TRG	AROCLOR-1254	330	U	V			
SS106194	SS00113EG	REAL	TRG	AROCLOR-1254	340	U	V			
SS106294	SS00114EG	REAL	TRG	AROCLOR-1254	360	U	V			
SS106394	SS00115EG	REAL	TRG	AROCLOR-1254	340	U	V			
SS106494	SS00116EG	REAL	TRG	AROCLOR-1254	330	U	V			
SS106594	SS00117EG	REAL	TRG	AROCLOR-1254	330	U	V			
SS106694	SS00118EG	REAL	TRG	AROCLOR-1254	330	U	V			
SS106794	SS00119EG	REAL	TRG	AROCLOR-1254	340	U	V			
SS106894	SS00120EG	REAL	TRG	AROCLOR-1254	340	U	V			
SS106994	SS00121EG	REAL	TRG	AROCLOR-1254	370	U	V			
SS107094	SS00122EG	REAL	TRG	AROCLOR-1254	330	U	V			
SS107194	SS00123EG	REAL	TRG	AROCLOR-1254	330	U	V			
SS107294	SS00103EG	DUP	TRG	AROCLOR-1254	340	U	V			
SS107294	SS00124EG	RNS	TRG	AROCLOR-1254	1	U	V			
SS107294	SS00125EG	REAL	TRG	AROCLOR-1254	340	U	V			
SS105394	SS00105EG	REAL	TRG	AROCLOR-1260	330	U	V			
SS105494	SS00106EG	REAL	TRG	AROCLOR-1260	320	U	V			
SS105594	SS00107EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS105694	SS00108EG	REAL	TRG	AROCLOR-1260	350	U	V			
SS105794	SS00109EG	REAL	TRG	AROCLOR-1260	350	U	V			
SS105894	SS00110EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS105994	SS00111EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS106094	SS00112EG	REAL	TRG	AROCLOR-1260	330	U	V			
SS106194	SS00113EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS106294	SS00114EG	REAL	TRG	AROCLOR-1260	360	U	V			
SS106394	SS00115EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS106494	SS00116EG	REAL	TRG	AROCLOR-1260	330	U	V			
SS106594	SS00117EG	REAL	TRG	AROCLOR-1260	330	U	V			
SS106694	SS00118EG	REAL	TRG	AROCLOR-1260	330	U	V			
SS106794	SS00119EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS106894	SS00120EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS106994	SS00121EG	REAL	TRG	AROCLOR-1260	370	U	V			
SS107094	SS00122EG	REAL	TRG	AROCLOR-1260	330	U	V			
SS107194	SS00123EG	REAL	TRG	AROCLOR-1260	330	U	V			
SS107294	SS00103EG	DUP	TRG	AROCLOR-1260	340	U	V			
SS107294	SS00124EG	RNS	TRG	AROCLOR-1260	1	U	V			
SS107294	SS00125EG	REAL	TRG	AROCLOR-1260	340	U	V			
SS105394	SS00105EG	REAL	TRG	DI-BUTYLCHLORENDATE	92		Z			SUR
SS105494	SS00106EG	REAL	TRG	DI-BUTYLCHLORENDATE	95		Z			SUR
SS105594	SS00107EG	REAL	TRG	DI-BUTYLCHLORENDATE	95		Z			SUR
SS105694	SS00108EG	REAL	TRG	DI-BUTYLCHLORENDATE	99		Z			SUR

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS105794	SS00109EG	REAL	TRG	DI-BUTYLCHLORENDATE	101		Z			SUR
SS105894	SS00110EG	REAL	TRG	DI-BUTYLCHLORENDATE	100		Z			SUR
SS105994	SS00111EG	REAL	TRG	DI-BUTYLCHLORENDATE	87		Z			SUR
SS106094	SS00112EG	REAL	TRG	DI-BUTYLCHLORENDATE	91		Z			SUR
SS106194	SS00113EG	REAL	TRG	DI-BUTYLCHLORENDATE	91		Z			SUR
SS106294	SS00114EG	REAL	TRG	DI-BUTYLCHLORENDATE	95		Z			SUR
SS106394	SS00115EG	REAL	TRG	DI-BUTYLCHLORENDATE	97		Z			SUR
SS106494	SS00116EG	REAL	TRG	DI-BUTYLCHLORENDATE	75		Z			SUR
SS106594	SS00117EG	REAL	TRG	DI-BUTYLCHLORENDATE	98		Z			SUR
SS106694	SS00118EG	REAL	TRG	DI-BUTYLCHLORENDATE	87		Z			SUR
SS106794	SS00119EG	REAL	TRG	DI-BUTYLCHLORENDATE	40		Z			SUR
SS106894	SS00120EG	REAL	TRG	DI-BUTYLCHLORENDATE	89		Z			SUR
SS106994	SS00121EG	REAL	TRG	DI-BUTYLCHLORENDATE	93		Z			SUR
SS107094	SS00122EG	REAL	TRG	DI-BUTYLCHLORENDATE	94		Z			SUR
SS107194	SS00123EG	REAL	FIX	DI-BUTYLCHLORENDATE	91		Y			SUR
SS107194	SS00123EG	REAL	TRG	DI-BUTYLCHLORENDATE	91		Z		52	SUR
SS107194	SS00123EG	REAL	FIX	DI-BUTYLCHLORENDATE	90		Y			SUR
SS107294	SS00103EG	DUP	TRG	DI-BUTYLCHLORENDATE	88		Z			SUR
SS107294	SS00124EG	RNS	TRG	DI-BUTYLCHLORENDATE	61		Z			SUR
SS107294	SS00125EG	REAL	FIX	DI-BUTYLCHLORENDATE	84		Y			SUR
SS107294	SS00125EG	REAL	FIX	DI-BUTYLCHLORENDATE	82		Y			SUR
SS107294	SS00125EG	REAL	TRG	DI-BUTYLCHLORENDATE	81		Z		52	SUR
SS105394	SS00105EG	REAL	TRG	DIELDRIN	33	U	V			
SS105494	SS00106EG	REAL	TRG	DIELDRIN	32	U	V			
SS105594	SS00107EG	REAL	TRG	DIELDRIN	34	U	V			
SS105694	SS00108EG	REAL	TRG	DIELDRIN	35	U	V			
SS105794	SS00109EG	REAL	TRG	DIELDRIN	35	U	V			
SS105894	SS00110EG	REAL	TRG	DIELDRIN	34	U	V			
SS105994	SS00111EG	REAL	TRG	DIELDRIN	34	U	V			
SS106094	SS00112EG	REAL	TRG	DIELDRIN	33	U	V			
SS106194	SS00113EG	REAL	TRG	DIELDRIN	34	U	V			
SS106294	SS00114EG	REAL	TRG	DIELDRIN	36	U	V			
SS106394	SS00115EG	REAL	TRG	DIELDRIN	34	U	V			
SS106494	SS00116EG	REAL	TRG	DIELDRIN	33	U	V			
SS106594	SS00117EG	REAL	TRG	DIELDRIN	33	U	V			
SS106694	SS00118EG	REAL	TRG	DIELDRIN	33	U	V			
SS106794	SS00119EG	REAL	TRG	DIELDRIN	34	U	V			
SS106894	SS00120EG	REAL	TRG	DIELDRIN	34	U	V			
SS106994	SS00121EG	REAL	TRG	DIELDRIN	37	U	V			
SS107094	SS00122EG	REAL	TRG	DIELDRIN	33	U	V			
SS107194	SS00123EG	REAL	TRG	DIELDRIN	33	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS107294	SS00103EG	DUP	TRG	DIELDRIN	34	U	V			
SS107294	SS00124EG	RNS	TRG	DIELDRIN	0.1	U	V			
SS107294	SS00125EG	REAL	TRG	DIELDRIN	34	U	V			
SS105394	SS00105EG	REAL	TRG	ENDOSULFAN I	16	U	V			
SS105494	SS00106EG	REAL	TRG	ENDOSULFAN I	16	U	V			
SS105594	SS00107EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS105694	SS00108EG	REAL	TRG	ENDOSULFAN I	18	U	V			
SS105794	SS00109EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS105894	SS00110EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS105994	SS00111EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106094	SS00112EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106194	SS00113EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106294	SS00114EG	REAL	TRG	ENDOSULFAN I	18	U	V			
SS106394	SS00115EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106494	SS00116EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106594	SS00117EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106694	SS00118EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106794	SS00119EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106894	SS00120EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS106994	SS00121EG	REAL	TRG	ENDOSULFAN I	18	U	V			
SS107094	SS00122EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS107194	SS00123EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS107294	SS00103EG	DUP	TRG	ENDOSULFAN I	17	U	V			
SS107294	SS00124EG	RNS	TRG	ENDOSULFAN I	0.05	U	V			
SS107294	SS00125EG	REAL	TRG	ENDOSULFAN I	17	U	V			
SS105394	SS00105EG	REAL	TRG	ENDOSULFAN II	33	U	V			
SS105494	SS00106EG	REAL	TRG	ENDOSULFAN II	32	U	V			
SS105594	SS00107EG	REAL	TRG	ENDOSULFAN II	34	U	V			
SS105694	SS00108EG	REAL	TRG	ENDOSULFAN II	35	U	V			
SS105794	SS00109EG	REAL	TRG	ENDOSULFAN II	35	U	V			
SS105894	SS00110EG	REAL	TRG	ENDOSULFAN II	34	U	V			
SS105994	SS00111EG	REAL	TRG	ENDOSULFAN II	34	U	V			
SS106094	SS00112EG	REAL	TRG	ENDOSULFAN II	33	U	V			
SS106194	SS00113EG	REAL	TRG	ENDOSULFAN II	34	U	V			
SS106294	SS00114EG	REAL	TRG	ENDOSULFAN II	36	U	V			
SS106394	SS00115EG	REAL	TRG	ENDOSULFAN II	34	U	V			
SS106494	SS00116EG	REAL	TRG	ENDOSULFAN II	33	U	V			
SS106594	SS00117EG	REAL	TRG	ENDOSULFAN II	33	U	V			
SS106694	SS00118EG	REAL	TRG	ENDOSULFAN II	33	U	V			
SS106794	SS00119EG	REAL	TRG	ENDOSULFAN II	34	U	V			
SS106894	SS00120EG	REAL	TRG	ENDOSULFAN II	34	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106994	SS00121EG	REAL	TRG	ENDOSULFAN II	37	U	V			
SS107094	SS00122EG	REAL	TRG	ENDOSULFAN II	33	U	V			
SS107194	SS00123EG	REAL	TRG	ENDOSULFAN II	33	U	V			
SS107294	SS00103EG	DUP	TRG	ENDOSULFAN II	34	U	V			
SS107294	SS00124EG	RNS	TRG	ENDOSULFAN II	0.1	U	V			
SS107294	SS00125EG	REAL	TRG	ENDOSULFAN II	34	U	V			
SS105394	SS00105EG	REAL	TRG	ENDOSULFAN SULFATE	33	U	V			
SS105494	SS00106EG	REAL	TRG	ENDOSULFAN SULFATE	32	U	V			
SS105594	SS00107EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS105694	SS00108EG	REAL	TRG	ENDOSULFAN SULFATE	35	U	V			
SS105794	SS00109EG	REAL	TRG	ENDOSULFAN SULFATE	35	U	V			
SS105894	SS00110EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS105994	SS00111EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS106094	SS00112EG	REAL	TRG	ENDOSULFAN SULFATE	33	U	V			
SS106194	SS00113EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS106294	SS00114EG	REAL	TRG	ENDOSULFAN SULFATE	36	U	V			
SS106394	SS00115EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS106494	SS00116EG	REAL	TRG	ENDOSULFAN SULFATE	33	U	V			
SS106594	SS00117EG	REAL	TRG	ENDOSULFAN SULFATE	33	U	V			
SS106694	SS00118EG	REAL	TRG	ENDOSULFAN SULFATE	33	U	V			
SS106794	SS00119EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS106894	SS00120EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS106994	SS00121EG	REAL	TRG	ENDOSULFAN SULFATE	37	U	V			
SS107094	SS00122EG	REAL	TRG	ENDOSULFAN SULFATE	33	U	V			
SS107194	SS00123EG	REAL	TRG	ENDOSULFAN SULFATE	33	U	V			
SS107294	SS00103EG	DUP	TRG	ENDOSULFAN SULFATE	34	U	V			
SS107294	SS00124EG	RNS	TRG	ENDOSULFAN SULFATE	0.1	U	V			
SS107294	SS00125EG	REAL	TRG	ENDOSULFAN SULFATE	34	U	V			
SS105394	SS00105EG	REAL	TRG	ENDRIN	33	U	V			
SS105494	SS00106EG	REAL	TRG	ENDRIN	32	U	V			
SS105594	SS00107EG	REAL	TRG	ENDRIN	34	U	V			
SS105694	SS00108EG	REAL	TRG	ENDRIN	35	U	V			
SS105794	SS00109EG	REAL	TRG	ENDRIN	35	U	V			
SS105894	SS00110EG	REAL	TRG	ENDRIN	34	U	V			
SS105994	SS00111EG	REAL	TRG	ENDRIN	34	U	V			
SS106094	SS00112EG	REAL	TRG	ENDRIN	33	U	V			
SS106194	SS00113EG	REAL	TRG	ENDRIN	34	U	V			
SS106294	SS00114EG	REAL	TRG	ENDRIN	36	U	V			
SS106394	SS00115EG	REAL	TRG	ENDRIN	34	U	V			
SS106494	SS00116EG	REAL	TRG	ENDRIN	33	U	V			
SS106594	SS00117EG	REAL	TRG	ENDRIN	33	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106694	SS00118EG	REAL	TRG	ENDRIN	33	U	V			
SS106794	SS00119EG	REAL	TRG	ENDRIN	34	U	V			
SS106894	SS00120EG	REAL	TRG	ENDRIN	34	U	V			
SS106994	SS00121EG	REAL	TRG	ENDRIN	37	U	V			
SS107094	SS00122EG	REAL	TRG	ENDRIN	33	U	V			
SS107194	SS00123EG	REAL	TRG	ENDRIN	33	U	V			
SS107294	SS00103EG	DUP	TRG	ENDRIN	34	U	V			
SS107294	SS00124EG	RNS	TRG	ENDRIN	0.1	U	V			
SS107294	SS00125EG	REAL	TRG	ENDRIN	34	U	V			
SS105394	SS00105EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS105494	SS00106EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS105594	SS00107EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS105694	SS00108EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS105794	SS00109EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS105894	SS00110EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS105994	SS00111EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106094	SS00112EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106194	SS00113EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106294	SS00114EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106394	SS00115EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106494	SS00116EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106594	SS00117EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106694	SS00118EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106794	SS00119EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106894	SS00120EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS106994	SS00121EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS107094	SS00122EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS107194	SS00123EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS107294	SS00103EG	DUP	TRG	ENDRIN ALDEHYDE			Z	89		
SS107294	SS00125EG	REAL	TRG	ENDRIN ALDEHYDE			Z	89		
SS107294	SS00124EG	RNS	TRG	ENDRIN ALDEHYDE			Z	89		
SS105394	SS00105EG	REAL	TRG	ENDRIN KETONE	33	U	V			
SS105494	SS00106EG	REAL	TRG	ENDRIN KETONE	32	U	V			
SS105594	SS00107EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS105694	SS00108EG	REAL	TRG	ENDRIN KETONE	35	U	V			
SS105794	SS00109EG	REAL	TRG	ENDRIN KETONE	35	U	V			
SS105894	SS00110EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS105994	SS00111EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS106094	SS00112EG	REAL	TRG	ENDRIN KETONE	33	U	V			
SS106194	SS00113EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS106294	SS00114EG	REAL	TRG	ENDRIN KETONE	36	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106394	SS00115EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS106494	SS00116EG	REAL	TRG	ENDRIN KETONE	33	U	V			
SS106594	SS00117EG	REAL	TRG	ENDRIN KETONE	33	U	V			
SS106694	SS00118EG	REAL	TRG	ENDRIN KETONE	33	U	V			
SS106794	SS00119EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS106894	SS00120EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS106994	SS00121EG	REAL	TRG	ENDRIN KETONE	37	U	V			
SS107094	SS00122EG	REAL	TRG	ENDRIN KETONE	33	U	V			
SS107194	SS00123EG	REAL	TRG	ENDRIN KETONE	33	U	V			
SS107294	SS00103EG	DUP	TRG	ENDRIN KETONE	34	U	V			
SS107294	SS00124EG	RNS	TRG	ENDRIN KETONE	0.1	U	V			
SS107294	SS00125EG	REAL	TRG	ENDRIN KETONE	34	U	V			
SS105394	SS00105EG	REAL	TRG	HEPTACHLOR	16	U	V			
SS105494	SS00106EG	REAL	TRG	HEPTACHLOR	16	U	V			
SS105594	SS00107EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS105694	SS00108EG	REAL	TRG	HEPTACHLOR	18	U	V			
SS105794	SS00109EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS105894	SS00110EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS105994	SS00111EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106094	SS00112EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106194	SS00113EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106294	SS00114EG	REAL	TRG	HEPTACHLOR	18	U	V			
SS106394	SS00115EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106494	SS00116EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106594	SS00117EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106694	SS00118EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106794	SS00119EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106894	SS00120EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS106994	SS00121EG	REAL	TRG	HEPTACHLOR	18	U	V			
SS107094	SS00122EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS107194	SS00123EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS107294	SS00103EG	DUP	TRG	HEPTACHLOR	17	U	V			
SS107294	SS00124EG	RNS	TRG	HEPTACHLOR	0.05	U	V			
SS107294	SS00125EG	REAL	TRG	HEPTACHLOR	17	U	V			
SS105394	SS00105EG	REAL	TRG	HEPTACHLOR EPOXIDE	16	U	V			
SS105494	SS00106EG	REAL	TRG	HEPTACHLOR EPOXIDE	16	U	V			
SS105594	SS00107EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS105694	SS00108EG	REAL	TRG	HEPTACHLOR EPOXIDE	18	U	V			
SS105794	SS00109EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS105894	SS00110EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS105994	SS00111EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS106094	SS00112EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106194	SS00113EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106294	SS00114EG	REAL	TRG	HEPTACHLOR EPOXIDE	18	U	V			
SS106394	SS00115EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106494	SS00116EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106594	SS00117EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106694	SS00118EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106794	SS00119EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106894	SS00120EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS106994	SS00121EG	REAL	TRG	HEPTACHLOR EPOXIDE	18	U	V			
SS107094	SS00122EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS107194	SS00123EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS107294	SS00103EG	DUP	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS107294	SS00125EG	REAL	TRG	HEPTACHLOR EPOXIDE	17	U	V			
SS107294	SS00124EG	RNS	TRG	HEPTACHLOR EPOXIDE	0.05	U	V			
SS105394	SS00105EG	REAL	TRG	METHOXYCHLOR	160	U	V			
SS105494	SS00106EG	REAL	TRG	METHOXYCHLOR	160	U	V			
SS105594	SS00107EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS105694	SS00108EG	REAL	TRG	METHOXYCHLOR	180	U	V			
SS105794	SS00109EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS105894	SS00110EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS105994	SS00111EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106094	SS00112EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106194	SS00113EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106294	SS00114EG	REAL	TRG	METHOXYCHLOR	180	U	V			
SS106394	SS00115EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106494	SS00116EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106594	SS00117EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106694	SS00118EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106794	SS00119EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106894	SS00120EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS106994	SS00121EG	REAL	TRG	METHOXYCHLOR	180	U	V			
SS107094	SS00122EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS107194	SS00123EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS107294	SS00103EG	DUP	TRG	METHOXYCHLOR	170	U	V			
SS107294	SS00125EG	REAL	TRG	METHOXYCHLOR	170	U	V			
SS107294	SS00124EG	RNS	TRG	METHOXYCHLOR	0.5	U	V			
SS105394	SS00105EG	REAL	TRG	TOXAPHENE	330	U	V			
SS105494	SS00106EG	REAL	TRG	TOXAPHENE	320	U	V			
SS105594	SS00107EG	REAL	TRG	TOXAPHENE	340	U	V			
SS105694	SS00108EG	REAL	TRG	TOXAPHENE	350	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS105794	SS00109EG	REAL	TRG	TOXAPHENE	350	U	V			
SS105894	SS00110EG	REAL	TRG	TOXAPHENE	340	U	V			
SS105994	SS00111EG	REAL	TRG	TOXAPHENE	340	U	V			
SS106094	SS00112EG	REAL	TRG	TOXAPHENE	330	U	V			
SS106194	SS00113EG	REAL	TRG	TOXAPHENE	340	U	V			
SS106294	SS00114EG	REAL	TRG	TOXAPHENE	360	U	V			
SS106394	SS00115EG	REAL	TRG	TOXAPHENE	340	U	V			
SS106494	SS00116EG	REAL	TRG	TOXAPHENE	330	U	V			
SS106594	SS00117EG	REAL	TRG	TOXAPHENE	330	U	V			
SS106694	SS00118EG	REAL	TRG	TOXAPHENE	330	U	V			
SS106794	SS00119EG	REAL	TRG	TOXAPHENE	340	U	V			
SS106894	SS00120EG	REAL	TRG	TOXAPHENE	340	U	V			
SS106994	SS00121EG	REAL	TRG	TOXAPHENE	370	U	V			
SS107094	SS00122EG	REAL	TRG	TOXAPHENE	330	U	V			
SS107194	SS00123EG	REAL	TRG	TOXAPHENE	330	U	V			
SS107294	SS00103EG	DUP	TRG	TOXAPHENE	340	U	V			
SS107294	SS00125EG	REAL	TRG	TOXAPHENE	340	U	V			
SS107294	SS00124EG	RNS	TRG	TOXAPHENE	1	U	V			
SS105394	SS00105EG	REAL	TRG	alpha-BHC	16	U	V			
SS105494	SS00106EG	REAL	TRG	alpha-BHC	16	U	V			
SS105594	SS00107EG	REAL	TRG	alpha-BHC	17	U	V			
SS105694	SS00108EG	REAL	TRG	alpha-BHC	18	U	V			
SS105794	SS00109EG	REAL	TRG	alpha-BHC	17	U	V			
SS105894	SS00110EG	REAL	TRG	alpha-BHC	17	U	V			
SS105994	SS00111EG	REAL	TRG	alpha-BHC	17	U	V			
SS106094	SS00112EG	REAL	TRG	alpha-BHC	17	U	V			
SS106194	SS00113EG	REAL	TRG	alpha-BHC	17	U	V			
SS106294	SS00114EG	REAL	TRG	alpha-BHC	18	U	V			
SS106394	SS00115EG	REAL	TRG	alpha-BHC	17	U	V			
SS106494	SS00116EG	REAL	TRG	alpha-BHC	17	U	V			
SS106594	SS00117EG	REAL	TRG	alpha-BHC	17	U	V			
SS106694	SS00118EG	REAL	TRG	alpha-BHC	17	U	V			
SS106794	SS00119EG	REAL	TRG	alpha-BHC	17	U	V			
SS106894	SS00120EG	REAL	TRG	alpha-BHC	17	U	V			
SS106994	SS00121EG	REAL	TRG	alpha-BHC	18	U	V			
SS107094	SS00122EG	REAL	TRG	alpha-BHC	17	U	V			
SS107194	SS00123EG	REAL	TRG	alpha-BHC	17	U	V			
SS107294	SS00103EG	DUP	TRG	alpha-BHC	17	U	V			
SS107294	SS00124EG	RNS	TRG	alpha-BHC	0.05	U	V			
SS107294	SS00125EG	REAL	TRG	alpha-BHC	17	U	V			
SS105394	SS00105EG	REAL	TRG	alpha-CHLORDANE	160	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS105494	SS00106EG	REAL	TRG	alpha-CHLORDANE	160	U	V			
SS105594	SS00107EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS105694	SS00108EG	REAL	TRG	alpha-CHLORDANE	180	U	V			
SS105794	SS00109EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS105894	SS00110EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS105994	SS00111EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106094	SS00112EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106194	SS00113EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106294	SS00114EG	REAL	TRG	alpha-CHLORDANE	180	U	V			
SS106394	SS00115EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106494	SS00116EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106594	SS00117EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106694	SS00118EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106794	SS00119EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106894	SS00120EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS106994	SS00121EG	REAL	TRG	alpha-CHLORDANE	180	U	V			
SS107094	SS00122EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS107194	SS00123EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS107294	SS00103EG	DUP	TRG	alpha-CHLORDANE	170	U	V			
SS107294	SS00124EG	RNS	TRG	alpha-CHLORDANE	0.5	U	V			
SS107294	SS00125EG	REAL	TRG	alpha-CHLORDANE	170	U	V			
SS105394	SS00105EG	REAL	TRG	beta-BHC	16	U	V			
SS105494	SS00106EG	REAL	TRG	beta-BHC	16	U	V			
SS105594	SS00107EG	REAL	TRG	beta-BHC	17	U	V			
SS105694	SS00108EG	REAL	TRG	beta-BHC	18	U	V			
SS105794	SS00109EG	REAL	TRG	beta-BHC	17	U	V			
SS105894	SS00110EG	REAL	TRG	beta-BHC	17	U	V			
SS105994	SS00111EG	REAL	TRG	beta-BHC	17	U	V			
SS106094	SS00112EG	REAL	TRG	beta-BHC	17	U	V			
SS106194	SS00113EG	REAL	TRG	beta-BHC	17	U	V			
SS106294	SS00114EG	REAL	TRG	beta-BHC	18	U	V			
SS106394	SS00115EG	REAL	TRG	beta-BHC	17	U	V			
SS106494	SS00116EG	REAL	TRG	beta-BHC	17	U	V			
SS106594	SS00117EG	REAL	TRG	beta-BHC	17	U	V			
SS106694	SS00118EG	REAL	TRG	beta-BHC	17	U	V			
SS106794	SS00119EG	REAL	TRG	beta-BHC	17	U	V			
SS106894	SS00120EG	REAL	TRG	beta-BHC	17	U	V			
SS106994	SS00121EG	REAL	TRG	beta-BHC	18	U	V			
SS107094	SS00122EG	REAL	TRG	beta-BHC	17	U	V			
SS107194	SS00123EG	REAL	TRG	beta-BHC	17	U	V			
SS107294	SS00103EG	DUP	TRG	beta-BHC	17	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS107294	SS00124EG	RNS	TRG	beta-BHC	0.05	U	V			
SS107294	SS00125EG	REAL	TRG	beta-BHC	17	U	V			
SS105394	SS00105EG	REAL	TRG	delta-BHC	16	U	V			
SS105494	SS00106EG	REAL	TRG	delta-BHC	16	U	V			
SS105594	SS00107EG	REAL	TRG	delta-BHC	17	U	V			
SS105694	SS00108EG	REAL	TRG	delta-BHC	18	U	V			
SS105794	SS00109EG	REAL	TRG	delta-BHC	17	U	V			
SS105894	SS00110EG	REAL	TRG	delta-BHC	17	U	V			
SS105994	SS00111EG	REAL	TRG	delta-BHC	17	U	V			
SS106094	SS00112EG	REAL	TRG	delta-BHC	17	U	V			
SS106194	SS00113EG	REAL	TRG	delta-BHC	17	U	V			
SS106294	SS00114EG	REAL	TRG	delta-BHC	18	U	V			
SS106394	SS00115EG	REAL	TRG	delta-BHC	17	U	V			
SS106494	SS00116EG	REAL	TRG	delta-BHC	17	U	V			
SS106594	SS00117EG	REAL	TRG	delta-BHC	17	U	V			
SS106694	SS00118EG	REAL	TRG	delta-BHC	17	U	V			
SS106794	SS00119EG	REAL	TRG	delta-BHC	17	U	V			
SS106894	SS00120EG	REAL	TRG	delta-BHC	17	U	V			
SS106994	SS00121EG	REAL	TRG	delta-BHC	18	U	V			
SS107094	SS00122EG	REAL	TRG	delta-BHC	17	U	V			
SS107194	SS00123EG	REAL	TRG	delta-BHC	17	U	V			
SS107294	SS00103EG	DUP	TRG	delta-BHC	17	U	V			
SS107294	SS00124EG	RNS	TRG	delta-BHC	0.05	U	V			
SS107294	SS00125EG	REAL	TRG	delta-BHC	17	U	V			
SS105394	SS00105EG	REAL	TRG	gamma-BHC (LINDANE)	16	U	V			
SS105494	SS00106EG	REAL	TRG	gamma-BHC (LINDANE)	16	U	V			
SS105594	SS00107EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS105694	SS00108EG	REAL	TRG	gamma-BHC (LINDANE)	18	U	V			
SS105794	SS00109EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS105894	SS00110EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS105994	SS00111EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106094	SS00112EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106194	SS00113EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106294	SS00114EG	REAL	TRG	gamma-BHC (LINDANE)	18	U	V			
SS106394	SS00115EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106494	SS00116EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106594	SS00117EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106694	SS00118EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106794	SS00119EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106894	SS00120EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS106994	SS00121EG	REAL	TRG	gamma-BHC (LINDANE)	18	U	V			

PESTICIDES AND PCBs:RAW DATA

LOCATION	SAMPLE#	QCCODE	TYPE	ANALYTE	RESULT	QUAL	VAL	R1	R2	TYPE2
SS107094	SS00122EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS107194	SS00123EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS107294	SS00103EG	DUP	TRG	gamma-BHC (LINDANE)	17	U	V			
SS107294	SS00124EG	RNS	TRG	gamma-BHC (LINDANE)	0.05	U	V			
SS107294	SS00125EG	REAL	TRG	gamma-BHC (LINDANE)	17	U	V			
SS105394	SS00105EG	REAL	TRG	gamma-CHLORDANE	160	U	V			
SS105494	SS00106EG	REAL	TRG	gamma-CHLORDANE	160	U	V			
SS105594	SS00107EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS105694	SS00108EG	REAL	TRG	gamma-CHLORDANE	180	U	V			
SS105794	SS00109EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS105894	SS00110EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS105994	SS00111EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106094	SS00112EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106194	SS00113EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106294	SS00114EG	REAL	TRG	gamma-CHLORDANE	180	U	V			
SS106394	SS00115EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106494	SS00116EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106594	SS00117EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106694	SS00118EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106794	SS00119EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106894	SS00120EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS106994	SS00121EG	REAL	TRG	gamma-CHLORDANE	180	U	V			
SS107094	SS00122EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS107194	SS00123EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS107294	SS00103EG	DUP	TRG	gamma-CHLORDANE	170	U	V			
SS107294	SS00125EG	REAL	TRG	gamma-CHLORDANE	170	U	V			
SS107294	SS00124EG	RNS	TRG	gamma-CHLORDANE	0.5	U	V			

INORGANICS

This section includes the raw data spreadsheets for inorganic chemicals. They are organized as indicated in the introduction of Appendix B, except the Type2 column was eliminated and sampling date (Sampdate) and analysis date (Analdate) columns were added.

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	ALUMINUM	11	11	U	V			5.5	UG/L	200
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	4050			V			4050	MG/KG	40
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	6450			V			6450	MG/KG	40
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	7070			V			7070	MG/KG	40
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	7340			V			7340	MG/KG	40
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	7410			V			7410	MG/KG	40
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	7770			V			7770	MG/KG	40
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	8360			V			8360	MG/KG	40
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	8480			V			8480	MG/KG	40
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	9020			V			9020	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	ALUMINUM	9136.4058			Z			9136.4058	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	10300			V			10300	MG/KG	40
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	10400			V			10400	MG/KG	40
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	10700			V			10700	MG/KG	40
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	10700			V			10700	MG/KG	40
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	10800			V			10800	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	12700			V			12700	MG/KG	40
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	13100			V			13100	MG/KG	40
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	13400			V			13400	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	ALUMINUM	13512.2383			Z			13512.2383	MG/KG	40
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	13900			V			13900	MG/KG	40
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	15000			V			15000	MG/KG	40
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	ALUMINUM	16100			V			16100	MG/KG	40
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	ALUMINUM	17100			V			17100	MG/KG	40
SS105494	D1	SS00106EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.38	.38	UN	JA	12		0.19	MG/KG	12
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	DUP	ANTIMONY	0.4075	.4075	U	Z			0.20375	MG/KG	12
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	TRG	ANTIMONY	0.41	.41	UN	JA	12		0.205	MG/KG	12
SS106594	P3	SS00117EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.41	.41	U	JA	7		0.205	MG/KG	12
SS107094	D5	SS00122EG	08-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.41	.41	UN	JA	12		0.205	MG/KG	12
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.41	.41	UN	JA	12		0.205	MG/KG	12
SS106794	P1	SS00119EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.42	.42	U	JA	7		0.21	MG/KG	12
SS105794	V3	SS00109EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.43	.43	UN	JA	12		0.215	MG/KG	12
SS105394	D2	SS00105EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.44	.44	U	JA	7		0.22	MG/KG	12
SS106294	D6	SS00114EG	08-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.47	.47	U	JA	7		0.235	MG/KG	12
SS105894	V4	SS00110EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.47	.47	U	JA	7		0.235	MG/KG	12
SS106194	V7	SS00113EG	08-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.56	.56	U	JA	7		0.28	MG/KG	12
SS106494	P5	SS00116EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.58	.58	U	JA	7		0.29	MG/KG	12
SS106694	V1	SS00118EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.58	.58	U	JA	7		0.29	MG/KG	12
SS105594	V2	SS00107EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.68	.68	U	JA	7		0.34	MG/KG	12
SS106094	V6	SS00112EG	08-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.69	.69	U	JA	7		0.345	MG/KG	12
SS106394	P4	SS00115EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.7	.7	U	JA	7		0.35	MG/KG	12

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS106894	P2	SS00120EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.7	.7	U	JA	7		0.35	MG/KG	12
SS105694	D3	SS00108EG	07-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.71	.71	U	JA	7		0.355	MG/KG	12
SS106994	D4	SS00121EG	08-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.76	.76	U	JA	7		0.38	MG/KG	12
SS107294	P7	SS00103EG	08-JUN-94	20-JUN-94	DUP	TRG	ANTIMONY	0.91	.91	U	JA	7		0.455	MG/KG	12
SS105994	V5	SS00111EG	08-JUN-94	20-JUN-94	REAL	TRG	ANTIMONY	0.94	.94	U	JA	7		0.47	MG/KG	12
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	DUP	ANTIMONY	0.6255		B	Z			0.6255	MG/KG	12
SS107294	P7	SS00124EG	08-JUN-94	17-JUN-94	RNS	TRG	ANTIMONY	2	2	U	V			1	UG/L	60
SS107294	P7	SS00124EG	08-JUN-94	20-JUN-94	RNS	TRG	ARSENIC	1	1	UW	V			0.5	UG/L	10
SS105494	D1	SS00106EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	2.3			V			2.3	MG/KG	2
SS105394	D2	SS00105EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	3.3			V			3.3	MG/KG	2
SS106294	D6	SS00114EG	08-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	3.9			V			3.9	MG/KG	2
SS105694	D3	SS00108EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	4.4			V			4.4	MG/KG	2
SS105794	V3	SS00109EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	4.8			V			4.8	MG/KG	2
SS106994	D4	SS00121EG	08-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	4.9			V			4.9	MG/KG	2
SS107094	D5	SS00122EG	08-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	5			V			5	MG/KG	2
SS105594	V2	SS00107EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	5.3			V			5.3	MG/KG	2
SS106194	V7	SS00113EG	08-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	5.8			V			5.8	MG/KG	2
SS105894	V4	SS00110EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	5.8			V			5.8	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	DUP	ARSENIC	5.806			Z			5.806	MG/KG	2
SS106694	V1	SS00118EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	6			V			6	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	TRG	ARSENIC	6.1			V			6.1	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	6.2			V			6.2	MG/KG	2
SS106794	P1	SS00119EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	6.3			V			6.3	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	DUP	ARSENIC	6.4548			Z			6.4548	MG/KG	2
SS107294	P7	SS00103EG	08-JUN-94	20-JUN-94	DUP	TRG	ARSENIC	6.8			V			6.8	MG/KG	2
SS106094	V6	SS00112EG	08-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	7.4			V			7.4	MG/KG	2
SS105994	V5	SS00111EG	08-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	8.3			V			8.3	MG/KG	2
SS106494	P5	SS00116EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	8.4			V			8.4	MG/KG	2
SS106594	P3	SS00117EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	8.7			V			8.7	MG/KG	2
SS106394	P4	SS00115EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	9.2			V			9.2	MG/KG	2
SS106894	P2	SS00120EG	07-JUN-94	20-JUN-94	REAL	TRG	ARSENIC	9.6			V			9.6	MG/KG	2
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	BARIUM	1	1	U	V			0.5	UG/L	200
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	45.7			V			45.7	MG/KG	40
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	76.3			V			76.3	MG/KG	40
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	79.6			V			79.6	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	BARIUM	88.1561			Z			88.1561	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	90.9			V			90.9	MG/KG	40
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	94.6			V			94.6	MG/KG	40
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	95.4			V			95.4	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	97.2			V			97.2	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	BARIUM	99.7239			Z			99.7239	MG/KG	40

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	102			V			102	MG/KG	40
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	105			V			105	MG/KG	40
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	105			V			105	MG/KG	40
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	BARIUM	106			V			106	MG/KG	40
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	107			V			107	MG/KG	40
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	107			V			107	MG/KG	40
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	108			V			108	MG/KG	40
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	109			V			109	MG/KG	40
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	111			V			111	MG/KG	40
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	114			V			114	MG/KG	40
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	118			V			118	MG/KG	40
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	118			V			118	MG/KG	40
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	BARIUM	128			V			128	MG/KG	40
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	BARIUM	134			V			134	MG/KG	40
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.24		B	V			0.24	MG/KG	1
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.45		B	V			0.45	MG/KG	1
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	BERYLLIUM	1	1	U	V			0.5	UG/L	5
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.52		B	V			0.52	MG/KG	1
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.53		B	V			0.53	MG/KG	1
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.54		B	V			0.54	MG/KG	1
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.59		B	V			0.59	MG/KG	1
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.63		B	V			0.63	MG/KG	1
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	BERYLLIUM	0.6545		B	Z			0.6545	MG/KG	1
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.66		B	V			0.66	MG/KG	1
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.67		B	V			0.67	MG/KG	1
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.68		B	V			0.68	MG/KG	1
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.69		B	V			0.69	MG/KG	1
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.7		B	V			0.7	MG/KG	1
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.72		B	V			0.72	MG/KG	1
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.72		B	V			0.72	MG/KG	1
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.75		B	V			0.75	MG/KG	1
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.77		B	V			0.77	MG/KG	1
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.77		B	V			0.77	MG/KG	1
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.81		B	V			0.81	MG/KG	1
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	BERYLLIUM	0.8211		B	Z			0.8211	MG/KG	1
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.86		B	V			0.86	MG/KG	1
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	BERYLLIUM	0.87		B	V			0.87	MG/KG	1
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	BERYLLIUM	0.9		B	V			0.9	MG/KG	1
SS105494	D1	SS00106EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.59	.59	U	V			0.295	MG/KG	1
SS105394	D2	SS00105EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.59	.59	U	V			0.295	MG/KG	1
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	CADMIUM	0.61	.61	U	V			0.305	MG/KG	1

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	CADMIUM	0.6113	.6113	U	Z			0.30565	MG/KG	1
SS107194	P6	SS00123EG	08-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.62	.62	U	V			0.31	MG/KG	1
SS107194	P6	SS00123EG	08-JUN-94	26-JUN-94	REAL	DUP	CADMIUM	0.6214	.6214	U	Z			0.3107	MG/KG	1
SS106194	V7	SS00113EG	08-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.63	.63	U	V			0.315	MG/KG	1
SS106294	D6	SS00114EG	08-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.65	.65	U	V			0.325	MG/KG	1
SS106994	D4	SS00121EG	08-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.67	.67	U	V			0.335	MG/KG	1
SS105994	V5	SS00111EG	08-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.67		B	V			0.67	MG/KG	1
SS107094	D5	SS00122EG	08-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.68		B	V			0.68	MG/KG	1
SS105794	V3	SS00109EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.71		B	V			0.71	MG/KG	1
SS106694	V1	SS00118EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.71		B	V			0.71	MG/KG	1
SS107294	P7	SS00103EG	08-JUN-94	26-JUN-94	DUP	TRG	CADMIUM	0.71		B	V			0.71	MG/KG	1
SS106494	P5	SS00116EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.73		B	V			0.73	MG/KG	1
SS105894	V4	SS00110EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.73		B	V			0.73	MG/KG	1
SS105694	D3	SS00108EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.77		B	V			0.77	MG/KG	1
SS106594	P3	SS00117EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.84		B	V			0.84	MG/KG	1
SS106894	P2	SS00120EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.85		B	V			0.85	MG/KG	1
SS106794	P1	SS00119EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	0.98		B	V			0.98	MG/KG	1
SS106094	V6	SS00112EG	08-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	1		B	V			1	MG/KG	1
SS106394	P4	SS00115EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	1		B	V			1	MG/KG	1
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	CADMIUM	3	3	U	V			1.5	UG/L	5
SS105594	V2	SS00107EG	07-JUN-94	26-JUN-94	REAL	TRG	CADMIUM	2.3			V			2.3	MG/KG	1
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	CALCIUM	21.4	21.4	U	JA	7		10.7	UG/L	5000
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	1450			V			1450	MG/KG	1000
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2120			V			2120	MG/KG	1000
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2130			V			2130	MG/KG	1000
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2350			V			2350	MG/KG	1000
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2440			V			2440	MG/KG	1000
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2610			V			2610	MG/KG	1000
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2630			V			2630	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	CALCIUM	2678.7999			Z			2678.7999	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2680			V			2680	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2810			V			2810	MG/KG	1000
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2870			V			2870	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	CALCIUM	2879.2245			Z			2879.2245	MG/KG	1000
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2900			V			2900	MG/KG	1000
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2940			V			2940	MG/KG	1000
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	2970			V			2970	MG/KG	1000
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	CALCIUM	2980			V			2980	MG/KG	1000
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	3030			V			3030	MG/KG	1000
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	3570			V			3570	MG/KG	1000
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	3590			V			3590	MG/KG	1000

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	3700			V			3700	MG/KG	1000
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	3770			V			3770	MG/KG	1000
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	4190			V			4190	MG/KG	1000
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	CALCIUM	4550			V			4550	MG/KG	1000
SS105494	D1	SS00106EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	12.1	12.1	U	JA	8		6.05	MG/KG	200
SS106594	P3	SS00117EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	12.6	12.6	U	V			6.3	MG/KG	200
SS106894	P2	SS00120EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	12.6	12.6	U	V			6.3	MG/KG	200
SS105894	V4	SS00110EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	12.7	12.7	U	V			6.35	MG/KG	200
SS106494	P5	SS00116EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	12.8	12.8	U	V			6.4	MG/KG	200
SS107294	P7	SS00125EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	12.8	12.8	U	V			6.4	MG/KG	200
SS105394	D2	SS00105EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	12.8	12.8	U	JA	8		6.4	MG/KG	200
SS107294	P7	SS00125EG	08-JUN-94	25-JUN-94	REAL	DUP	CESIUM	12.8363	12.83	U	Z			6.41815	MG/KG	200
SS106094	V6	SS00112EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13	13	U	JA	8		6.5	MG/KG	200
SS107194	P6	SS00123EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13	13	U	JA	8		6.5	MG/KG	200
SS107094	D5	SS00122EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13	13	U	JA	8		6.5	MG/KG	200
SS106694	V1	SS00118EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13	13	U	JA	8		6.5	MG/KG	200
SS107194	P6	SS00123EG	08-JUN-94	25-JUN-94	REAL	DUP	CESIUM	13.0494	13.04	U	Z			6.5247	MG/KG	200
SS106794	P1	SS00119EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.1	13.1	U	V			6.55	MG/KG	200
SS107294	P7	SS00103EG	08-JUN-94	25-JUN-94	DUP	TRG	CESIUM	13.1	13.1	U	JA	8		6.55	MG/KG	200
SS105994	V5	SS00111EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.3	13.3	U	JA	8		6.65	MG/KG	200
SS105594	V2	SS00107EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.3	13.3	U	JA	8		6.65	MG/KG	200
SS106194	V7	SS00113EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.3	13.3	U	V			6.65	MG/KG	200
SS106394	P4	SS00115EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.3	13.3	U	JA	8		6.65	MG/KG	200
SS105694	D3	SS00108EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.4	13.4	U	JA	8		6.7	MG/KG	200
SS105794	V3	SS00109EG	07-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.5	13.5	U	V			6.75	MG/KG	200
SS106294	D6	SS00114EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	13.9	13.9	U	JA	8		6.95	MG/KG	200
SS106994	D4	SS00121EG	08-JUN-94	25-JUN-94	REAL	TRG	CESIUM	14	14	U	JA	8		7	MG/KG	200
SS107294	P7	SS00124EG	08-JUN-94	17-JUN-94	RNS	TRG	CESIUM	63	63	U	V			31.5	UG/L	1000
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	CHROMIUM	2	2	U	V			1	UG/L	10
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	5.5			V			5.5	MG/KG	2
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	7.5			V			7.5	MG/KG	2
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	7.5			V			7.5	MG/KG	2
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	8.7			V			8.7	MG/KG	2
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	9			V			9	MG/KG	2
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	9.5			V			9.5	MG/KG	2
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	10.5			V			10.5	MG/KG	2
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	10.7			V			10.7	MG/KG	2
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	10.7			V			10.7	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	CHROMIUM	11.1127			Z			11.1127	MG/KG	2
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	11.3			V			11.3	MG/KG	2
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	11.5			V			11.5	MG/KG	2

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DIL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	11.9			V			11.9	MG/KG	2
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	12.1			V			12.1	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	12.1			V			12.1	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	13.3			V			13.3	MG/KG	2
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	13.5			V			13.5	MG/KG	2
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	13.7			V			13.7	MG/KG	2
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	14.1			V			14.1	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	CHROMIUM	14.2503			Z			14.2503	MG/KG	2
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	14.8			V			14.8	MG/KG	2
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	CHROMIUM	16.6			V			16.6	MG/KG	2
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	CHROMIUM	16.9			V			16.9	MG/KG	2
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	COBALT	2	2	U	V			1	UG/L	50
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	3.4		B	V			3.4	MG/KG	10
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	5.2		B	V			5.2	MG/KG	10
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	5.3		B	V			5.3	MG/KG	10
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	5.6		B	V			5.6	MG/KG	10
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	5.7		B	V			5.7	MG/KG	10
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	5.8		B	V			5.8	MG/KG	10
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	6.5		B	V			6.5	MG/KG	10
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	6.9		B	V			6.9	MG/KG	10
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	7.2		B	V			7.2	MG/KG	10
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	7.3		B	V			7.3	MG/KG	10
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	7.5		B	V			7.5	MG/KG	10
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	7.7		B	V			7.7	MG/KG	10
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	7.9		B	V			7.9	MG/KG	10
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	COBALT	7.9		B	V			7.9	MG/KG	10
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	8.4		B	V			8.4	MG/KG	10
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	8.7		B	V			8.7	MG/KG	10
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	8.8		B	V			8.8	MG/KG	10
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	COBALT	8.8902		B	Z			8.8902	MG/KG	10
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	9		B	V			9	MG/KG	10
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	9.4		B	V			9.4	MG/KG	10
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	COBALT	9.4479		B	Z			9.4479	MG/KG	10
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	COBALT	10.2		B	JA	9		10.2	MG/KG	10
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	COBALT	11.2			V			11.2	MG/KG	10
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	COPPER	1	1	U	JA	8		0.5	UG/L	25
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	5.2			V			5.2	MG/KG	5
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	10.3			V			10.3	MG/KG	5
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	10.3			V			10.3	MG/KG	5
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	10.6			V			10.6	MG/KG	5
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	11			V			11	MG/KG	5

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	11.6			V			11.6	MG/KG	5
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	12.1			V			12.1	MG/KG	5
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	13.2			V			13.2	MG/KG	5
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	13.3			V			13.3	MG/KG	5
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	13.5			V			13.5	MG/KG	5
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	13.5			V			13.5	MG/KG	5
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	13.9			V			13.9	MG/KG	5
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	14.4			V			14.4	MG/KG	5
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	14.5			V			14.5	MG/KG	5
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	COPPER	14.5263			Z			14.5263	MG/KG	5
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	15			V			15	MG/KG	5
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	15			V			15	MG/KG	5
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	15.2			V			15.2	MG/KG	5
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	COPPER	15.3302			Z			15.3302	MG/KG	5
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	COPPER	15.4			V			15.4	MG/KG	5
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	15.4			V			15.4	MG/KG	5
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	COPPER	15.7			V			15.7	MG/KG	5
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	COPPER	16			V			16	MG/KG	5
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	IRON	16.1	16.1	U	JA	7		8.05	UG/L	100
SS105494	D1	SS00106EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	7390			V			7390	MG/KG	20
SS107094	D5	SS00122EG	08-JUN-94	26-JUN-94	REAL	TRG	IRON	9030			V			9030	MG/KG	20
SS106694	V1	SS00118EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	9100			V			9100	MG/KG	20
SS105794	V3	SS00109EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	9420			V			9420	MG/KG	20
SS105894	V4	SS00110EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	9830			V			9830	MG/KG	20
SS107194	P6	SS00123EG	08-JUN-94	26-JUN-94	REAL	TRG	IRON	10300			V			10300	MG/KG	20
SS107194	P6	SS00123EG	08-JUN-94	26-JUN-94	REAL	DUP	IRON	11547.4212			Z			11547.4212	MG/KG	20
SS106594	P3	SS00117EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	11700			V			11700	MG/KG	20
SS106294	D6	SS00114EG	08-JUN-94	26-JUN-94	REAL	TRG	IRON	11800			V			11800	MG/KG	20
SS105694	D3	SS00108EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	12200			V			12200	MG/KG	20
SS106494	P5	SS00116EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	12400			V			12400	MG/KG	20
SS105394	D2	SS00105EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	12600			V			12600	MG/KG	20
SS106794	P1	SS00119EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	12800			V			12800	MG/KG	20
SS106994	D4	SS00121EG	08-JUN-94	26-JUN-94	REAL	TRG	IRON	13100			V			13100	MG/KG	20
SS106394	P4	SS00115EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	13800			V			13800	MG/KG	20
SS106194	V7	SS00113EG	08-JUN-94	26-JUN-94	REAL	TRG	IRON	14800			V			14800	MG/KG	20
SS105994	V5	SS00111EG	08-JUN-94	26-JUN-94	REAL	TRG	IRON	14900			V			14900	MG/KG	20
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	IRON	15300			V			15300	MG/KG	20
SS105594	V2	SS00107EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	15600			V			15600	MG/KG	20
SS106894	P2	SS00120EG	07-JUN-94	26-JUN-94	REAL	TRG	IRON	16000			V			16000	MG/KG	20
SS106094	V6	SS00112EG	08-JUN-94	26-JUN-94	REAL	TRG	IRON	16100			V			16100	MG/KG	20
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	IRON	16308.0431			Z			16308.0431	MG/KG	20

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DIL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS107294	P7	SS00103EG	08-JUN-94	26-JUN-94	DUP	TRG	IRON	20900			V			20900	MG/KG	20
SS107294	P7	SS00124EG	08-JUN-94	16-JUN-94	RNS	TRG	LEAD	1	1	U	V			0.5	UG/L	3
SS105494	D1	SS00106EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	8.6			V			8.6	MG/KG	0.6
SS105394	D2	SS00105EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	21.2			V			21.2	MG/KG	0.6
SS106994	D4	SS00121EG	08-JUN-94	20-JUN-94	REAL	TRG	LEAD	25.1			V			25.1	MG/KG	0.6
SS106194	V7	SS00113EG	08-JUN-94	20-JUN-94	REAL	TRG	LEAD	25.2			V			25.2	MG/KG	0.6
SS106294	D6	SS00114EG	08-JUN-94	20-JUN-94	REAL	TRG	LEAD	26.8			V			26.8	MG/KG	0.6
SS105794	V3	SS00109EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	26.8			V			26.8	MG/KG	0.6
SS105694	D3	SS00108EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	28.4			V			28.4	MG/KG	0.6
SS107094	D5	SS00122EG	08-JUN-94	20-JUN-94	REAL	TRG	LEAD	29.6			V			29.6	MG/KG	0.6
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	TRG	LEAD	30.1			V			30.1	MG/KG	0.6
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	DUP	LEAD	31.2636			Z			31.2636	MG/KG	0.6
SS106694	V1	SS00118EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	31.3			V			31.3	MG/KG	0.6
SS107294	P7	SS00103EG	08-JUN-94	20-JUN-94	DUP	TRG	LEAD	32.3			V			32.3	MG/KG	0.6
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	DUP	LEAD	32.5262			Z			32.5262	MG/KG	0.6
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	TRG	LEAD	32.7			V			32.7	MG/KG	0.6
SS105894	V4	SS00110EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	36.9			V			36.9	MG/KG	0.6
SS106794	P1	SS00119EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	36.9			V			36.9	MG/KG	0.6
SS105594	V2	SS00107EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	39.2			V			39.2	MG/KG	0.6
SS106094	V6	SS00112EG	08-JUN-94	20-JUN-94	REAL	TRG	LEAD	40.8			V			40.8	MG/KG	0.6
SS105994	V5	SS00111EG	08-JUN-94	20-JUN-94	REAL	TRG	LEAD	41.3			V			41.3	MG/KG	0.6
SS106494	P5	SS00116EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	41.4			V			41.4	MG/KG	0.6
SS106894	P2	SS00120EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	44.4			V			44.4	MG/KG	0.6
SS106594	P3	SS00117EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	50.9			V			50.9	MG/KG	0.6
SS106394	P4	SS00115EG	07-JUN-94	20-JUN-94	REAL	TRG	LEAD	53.3			V			53.3	MG/KG	0.6
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	LITHIUM	2	2	U	V			1	UG/L	100
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	4.8		B	V			4.8	MG/KG	20
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	5.2		B	V			5.2	MG/KG	20
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	5.4		B	V			5.4	MG/KG	20
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	5.6		B	V			5.6	MG/KG	20
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	5.7		B	V			5.7	MG/KG	20
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	6.4		B	V			6.4	MG/KG	20
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	6.5		B	V			6.5	MG/KG	20
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	LITHIUM	6.9618		B	Z			6.9618	MG/KG	20
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	7.1		B	V			7.1	MG/KG	20
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	7.4		B	V			7.4	MG/KG	20
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	7.4		B	V			7.4	MG/KG	20
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	7.7		B	V			7.7	MG/KG	20
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	7.8		B	V			7.8	MG/KG	20
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	8.2		B	V			8.2	MG/KG	20
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	8.6		B	V			8.6	MG/KG	20

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	8.6		B	V			8.6	MG/KG	20
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	9.1		B	V			9.1	MG/KG	20
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	LITHIUM	9.4439		B	Z			9.4439	MG/KG	20
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	9.5		B	V			9.5	MG/KG	20
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	10.3		B	V			10.3	MG/KG	20
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	10.3		B	V			10.3	MG/KG	20
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	LITHIUM	10.7		B	V			10.7	MG/KG	20
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	LITHIUM	11.6		B	V			11.6	MG/KG	20
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	MAGNESIUM	13	13	U	V			6.5	UG/L	5000
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1310			V			1310	MG/KG	1000
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1360			V			1360	MG/KG	1000
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1410			V			1410	MG/KG	1000
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1420			V			1420	MG/KG	1000
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1470			V			1470	MG/KG	1000
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1480			V			1480	MG/KG	1000
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1510			V			1510	MG/KG	1000
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1630			V			1630	MG/KG	1000
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1700			V			1700	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	MAGNESIUM	1734.4795			Z			1734.4795	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1840			V			1840	MG/KG	1000
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	1920			V			1920	MG/KG	1000
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2040			V			2040	MG/KG	1000
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2070			V			2070	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2140			V			2140	MG/KG	1000
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2200			V			2200	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	MAGNESIUM	2235.4323			Z			2235.4323	MG/KG	1000
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2320			V			2320	MG/KG	1000
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	MAGNESIUM	2480			V			2480	MG/KG	1000
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2490			V			2490	MG/KG	1000
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2500			V			2500	MG/KG	1000
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2560			V			2560	MG/KG	1000
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	MAGNESIUM	2800			V			2800	MG/KG	1000
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	MANGANESE	1.3	1.3	U	JA	7		0.65	UG/L	15
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	129			V			129	MG/KG	3
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	141			V			141	MG/KG	3
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	163			V			163	MG/KG	3
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	176			V			176	MG/KG	3
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	190			V			190	MG/KG	3
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	196			V			196	MG/KG	3
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	205			V			205	MG/KG	3
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	212			V			212	MG/KG	3

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLEID	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	214			V			214	MG/KG	3
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	228			V			228	MG/KG	3
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	229			V			229	MG/KG	3
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	231			V			231	MG/KG	3
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	271			V			271	MG/KG	3
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	273			V			273	MG/KG	3
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	MANGANESE	277.8574			Z			277.8574	MG/KG	3
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	288			V			288	MG/KG	3
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	294			V			294	MG/KG	3
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	MANGANESE	298			V			298	MG/KG	3
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	MANGANESE	298.9353			Z			298.9353	MG/KG	3
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	302			V			302	MG/KG	3
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	313			V			313	MG/KG	3
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	330			V			330	MG/KG	3
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	MANGANESE	357			V			357	MG/KG	3
SS105994	V5	SS00111EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.08	.08	UN	V			0.04	MG/KG	0.1
SS107194	P6	SS00123EG	08-JUN-94	16-JUN-94	REAL	DUP	MERCURY	0.0837	.0837	U	Z			0.04185	MG/KG	0.1
SS106694	V1	SS00118EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.09	.09	UN	V			0.045	MG/KG	0.1
SS105494	D1	SS00106EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.09	.09	UN	V			0.045	MG/KG	0.1
SS105594	V2	SS00107EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.09	.09	UN	V			0.045	MG/KG	0.1
SS107294	P7	SS00125EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.09	.09	UN	V			0.045	MG/KG	0.1
SS105394	D2	SS00105EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.09	.09	UN	V			0.045	MG/KG	0.1
SS106294	D6	SS00114EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.09	.09	UN	V			0.045	MG/KG	0.1
SS107294	P7	SS00125EG	08-JUN-94	16-JUN-94	REAL	DUP	MERCURY	0.0912	.0912	U	Z			0.0456	MG/KG	0.1
SS107194	P6	SS00123EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.1	.1	UN	V			0.05	MG/KG	0.1
SS106094	V6	SS00112EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.1	.1	UN	V			0.05	MG/KG	0.1
SS107094	D5	SS00122EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.1	.1	UN	V			0.05	MG/KG	0.1
SS106994	D4	SS00121EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.11	.11	UN	V			0.055	MG/KG	0.1
SS107294	P7	SS00103EG	08-JUN-94	16-JUN-94	DUP	TRG	MERCURY	0.11	.11	UN	V			0.055	MG/KG	0.1
SS106194	V7	SS00113EG	08-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.11	.11	UN	V			0.055	MG/KG	0.1
SS106494	P5	SS00116EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.09		N	JA	12		0.09	MG/KG	0.1
SS105894	V4	SS00110EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.1		N	JA	12		0.1	MG/KG	0.1
SS105694	D3	SS00108EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.1		N	JA	12		0.1	MG/KG	0.1
SS107294	P7	SS00124EG	08-JUN-94	20-JUN-94	RNS	TRG	MERCURY	0.2	.2	U	V			0.1	UG/L	0.2
SS105794	V3	SS00109EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.11		N	JA	12		0.11	MG/KG	0.1
SS106794	P1	SS00119EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.11		N	JA	12		0.11	MG/KG	0.1
SS106394	P4	SS00115EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.11		N	JA	12		0.11	MG/KG	0.1
SS106594	P3	SS00117EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.12		N	JA	12		0.12	MG/KG	0.1
SS106894	P2	SS00120EG	07-JUN-94	16-JUN-94	REAL	TRG	MERCURY	0.12		N	JA	12		0.12	MG/KG	0.1
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	0.58	.58	U	V			0.29	MG/KG	40
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	0.64	.64	U	JA	7		0.32	MG/KG	40

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	0.65	.65	U	JA	7		0.325	MG/KG	40
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	0.74	.74	U	JA	7		0.37	MG/KG	40
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	0.76	.76	U	JA	7		0.38	MG/KG	40
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	0.86	.86	U	JA	7		0.43	MG/KG	40
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	0.97	.97	U	JA	7		0.485	MG/KG	40
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.1	1.1	U	JA	7		0.55	MG/KG	40
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.1	1.1	U	JA	7		0.55	MG/KG	40
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.1	1.1	U	JA	7		0.55	MG/KG	40
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.1	1.1	U	JA	7		0.55	MG/KG	40
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	MOLYBDENUM	1.2	1.2	U	JA	7		0.6	MG/KG	40
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.2	1.2	U	JA	7		0.6	MG/KG	40
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.2	1.2	U	JA	7		0.6	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.3	1.3	U	JA	7		0.65	MG/KG	40
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.5	1.5	U	JA	7		0.75	MG/KG	40
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.5	1.5	U	JA	7		0.75	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.6	1.6	U	JA	7		0.8	MG/KG	40
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.6	1.6	U	JA	7		0.8	MG/KG	40
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.6	1.6	U	JA	7		0.8	MG/KG	40
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	MOLYBDENUM	1.8	1.8	U	JA	7		0.9	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	MOLYBDENUM	0.9135		B	Z			0.9135	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	MOLYBDENUM	0.9515		B	Z			0.9515	MG/KG	40
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	MOLYBDENUM	3	3	U	V			1.5	UG/L	200
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	NICKEL	6	6	U	V			3	UG/L	40
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	3.8		B	JA	8		3.8	MG/KG	8
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	6.4		B	JA	8		6.4	MG/KG	8
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	6.7		B	V			6.7	MG/KG	8
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	7		B	V			7	MG/KG	8
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	7.2		B	V			7.2	MG/KG	8
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	7.6		B	V			7.6	MG/KG	8
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	8.6			V			8.6	MG/KG	8
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	8.8			V			8.8	MG/KG	8
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	9.4			V			9.4	MG/KG	8
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	9.8			V			9.8	MG/KG	8
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	9.9			V			9.9	MG/KG	8
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	10.2			V			10.2	MG/KG	8
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	10.9			V			10.9	MG/KG	8
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	11			V			11	MG/KG	8
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	NICKEL	11.0962			Z			11.0962	MG/KG	8
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	11.2			V			11.2	MG/KG	8
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	NICKEL	11.8			V			11.8	MG/KG	8
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	12.4			V			12.4	MG/KG	8

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	12.5			V			12.5	MG/KG	8
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	12.8			V			12.8	MG/KG	8
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	NICKEL	13.4781			Z			13.4781	MG/KG	8
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	NICKEL	14			V			14	MG/KG	8
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	NICKEL	14			V			14	MG/KG	8
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	POTASSIUM	244	244	U	V			122	UG/L	5000
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1110			V			1110	MG/KG	1000
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1380			V			1380	MG/KG	1000
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1630			V			1630	MG/KG	1000
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1640			V			1640	MG/KG	1000
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1730			V			1730	MG/KG	1000
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1830			V			1830	MG/KG	1000
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1860			V			1860	MG/KG	1000
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	1890			V			1890	MG/KG	1000
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2030			V			2030	MG/KG	1000
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2040			V			2040	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	POTASSIUM	2051.0792			Z			2051.0792	MG/KG	1000
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2070			V			2070	MG/KG	1000
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2090			V			2090	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2150			V			2150	MG/KG	1000
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2240			V			2240	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2240			V			2240	MG/KG	1000
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2310			V			2310	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	POTASSIUM	2335.957			Z			2335.957	MG/KG	1000
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2580			V			2580	MG/KG	1000
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	POTASSIUM	2650			V			2650	MG/KG	1000
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2690			V			2690	MG/KG	1000
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2750			V			2750	MG/KG	1000
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	POTASSIUM	2830			V			2830	MG/KG	1000
SS105494	D1	SS00106EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.58	.58	U	V			0.29	MG/KG	1
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	TRG	SELENIUM	0.61	.61	U	JA	5		0.305	MG/KG	1
SS106494	P5	SS00116EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.61	.61	U	V			0.305	MG/KG	1
SS105394	D2	SS00105EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.61	.61	U	V			0.305	MG/KG	1
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	DUP	SELENIUM	0.6113	.6113	U	Z			0.30565	MG/KG	1
SS106694	V1	SS00118EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.62	.62	U	V			0.31	MG/KG	1
SS105594	V2	SS00107EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.63	.63	U	V			0.315	MG/KG	1
SS106194	V7	SS00113EG	08-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.64	.64	U	V			0.32	MG/KG	1
SS106994	D4	SS00121EG	08-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.67	.67	U	V			0.335	MG/KG	1
SS107294	P7	SS00124EG	08-JUN-94	17-JUN-94	RNS	TRG	SELENIUM	1	1	U	V			0.5	UG/L	5
SS106094	V6	SS00112EG	08-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.68		B	V			0.68	MG/KG	1
SS107094	D5	SS00122EG	08-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.69		B	V			0.69	MG/KG	1

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS106794	P1	SS00119EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.71		B	V			0.71	MG/KG	1
SS105994	V5	SS00111EG	08-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.73		B	V			0.73	MG/KG	1
SS105894	V4	SS00110EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.75		B	V			0.75	MG/KG	1
SS106394	P4	SS00115EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.79		B	V			0.79	MG/KG	1
SS106294	D6	SS00114EG	08-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.79		B	V			0.79	MG/KG	1
SS106894	P2	SS00120EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.81		B	V			0.81	MG/KG	1
SS107294	P7	SS00103EG	08-JUN-94	20-JUN-94	DUP	TRG	SELENIUM	0.84		B	V			0.84	MG/KG	1
SS106594	P3	SS00117EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.86		B	V			0.86	MG/KG	1
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	DUP	SELENIUM	0.8824		B	Z			0.8824	MG/KG	1
SS105794	V3	SS00109EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.89		B	V			0.89	MG/KG	1
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	0.97		B	V			0.97	MG/KG	1
SS105694	D3	SS00108EG	07-JUN-94	20-JUN-94	REAL	TRG	SELENIUM	1.4			V			1.4	MG/KG	1
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	SILICON	62.6	62.6	U	JA	7		31.3	UG/L	100
SS105394	D2	SS00105EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	934		N	JA	12	10	934	MG/KG	100
SS106494	P5	SS00116EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1180		N	JA	12	10	1180	MG/KG	100
SS105794	V3	SS00109EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1190		N	JA	12	10	1190	MG/KG	100
SS107194	P6	SS00123EG	08-JUN-94	26-JUN-94	REAL	DUP	SILICON	1209.7498			Z			1209.7498	MG/KG	100
SS107094	D5	SS00122EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1240		N	JA	12	10	1240	MG/KG	100
SS105494	D1	SS00106EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1270		N	JA	12	10	1270	MG/KG	100
SS106694	V1	SS00118EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1280		N	JA	12	10	1280	MG/KG	100
SS105894	V4	SS00110EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1290		N	JA	12	10	1290	MG/KG	100
SS106594	P3	SS00117EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1330		N	JA	12	10	1330	MG/KG	100
SS106394	P4	SS00115EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1360		N	JA	12	10	1360	MG/KG	100
SS107294	P7	SS00125EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1360		N	JA	12	10	1360	MG/KG	100
SS107194	P6	SS00123EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1420		N	JA	12	10	1420	MG/KG	100
SS106094	V6	SS00112EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1440		N	JA	12	10	1440	MG/KG	100
SS105994	V5	SS00111EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1460		N	JA	12	10	1460	MG/KG	100
SS106894	P2	SS00120EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1470		N	JA	12	10	1470	MG/KG	100
SS107294	P7	SS00103EG	08-JUN-94	26-JUN-94	DUP	TRG	SILICON	1480		N	JA	12	10	1480	MG/KG	100
SS107294	P7	SS00125EG	08-JUN-94	26-JUN-94	REAL	DUP	SILICON	1485.5286			Z			1485.5286	MG/KG	100
SS105594	V2	SS00107EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1510		N	JA	12	10	1510	MG/KG	100
SS105694	D3	SS00108EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1510		N	JA	12	10	1510	MG/KG	100
SS106994	D4	SS00121EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1570		N	JA	12	10	1570	MG/KG	100
SS106194	V7	SS00113EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1580		N	JA	12	10	1580	MG/KG	100
SS106294	D6	SS00114EG	08-JUN-94	26-JUN-94	REAL	TRG	SILICON	1650		N	JA	12	10	1650	MG/KG	100
SS106794	P1	SS00119EG	07-JUN-94	26-JUN-94	REAL	TRG	SILICON	1650		N	JA	12	10	1650	MG/KG	100
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.38	.38	U	V			0.19	MG/KG	2
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.4	.4	U	V			0.2	MG/KG	2
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.4	.4	U	V			0.2	MG/KG	2
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.4	.4	U	V			0.2	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	SILVER	0.4075	.4075	U	Z			0.20375	MG/KG	2

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.41	.41	U	V			0.205	MG/KG	2
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.41	.41	U	JA	8		0.205	MG/KG	2
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.41	.41	U	V			0.205	MG/KG	2
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.41	.41	U	JA	8		0.205	MG/KG	2
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	SILVER	0.41	.41	U	JA	9		0.205	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.41	.41	U	JA	8		0.205	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.41	.41	U	V			0.205	MG/KG	2
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.41	.41	U	V			0.205	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	SILVER	0.4143	.4143	U	Z			0.20715	MG/KG	2
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.42	.42	U	JA	8		0.21	MG/KG	2
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.42	.42	U	JA	8		0.21	MG/KG	2
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.42	.42	U	JA	8		0.21	MG/KG	2
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.42	.42	U	JA	8		0.21	MG/KG	2
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.42	.42	U	V			0.21	MG/KG	2
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.42	.42	U	V			0.21	MG/KG	2
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.43	.43	U	JA	8		0.215	MG/KG	2
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.44	.44	U	V			0.22	MG/KG	2
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	SILVER	0.44	.44	U	JA	8		0.22	MG/KG	2
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	SILVER	2	2	U	V			1	UG/L	10
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	SODIUM	14		B	JA	8		14	UG/L	5000
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	43.8		B	V			43.8	MG/KG	1000
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	45.8		B	V			45.8	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	SODIUM	47.5952		B	Z			47.5952	MG/KG	1000
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	48.6		B	V			48.6	MG/KG	1000
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	49.1		B	V			49.1	MG/KG	1000
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	50.7		B	V			50.7	MG/KG	1000
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	51.3		B	V			51.3	MG/KG	1000
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	54.1		B	V			54.1	MG/KG	1000
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	54.2		B	V			54.2	MG/KG	1000
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	55.6		B	V			55.6	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	SODIUM	56.4696		B	Z			56.4696	MG/KG	1000
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	57		B	V			57	MG/KG	1000
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	60.4		B	V			60.4	MG/KG	1000
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	SODIUM	62.6		B	JA	9		62.6	MG/KG	1000
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	64.8		B	V			64.8	MG/KG	1000
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	67.3		B	V			67.3	MG/KG	1000
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	72.1		B	V			72.1	MG/KG	1000
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	73.3		B	V			73.3	MG/KG	1000
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	78.3		B	V			78.3	MG/KG	1000
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	79.3		B	V			79.3	MG/KG	1000
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	SODIUM	79.7		B	V			79.7	MG/KG	1000

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	81.5		B	V			81.5	MG/KG	1000
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	SODIUM	105		B	V			105	MG/KG	1000
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	STRONTIUM	1	1	U	V			0.5	UG/L	200
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	9.6		B	V			9.6	MG/KG	40
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	17		B	V			17	MG/KG	40
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	18.6		B	V			18.6	MG/KG	40
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	21.2		B	V			21.2	MG/KG	40
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	21.4		B	V			21.4	MG/KG	40
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	22.3		B	V			22.3	MG/KG	40
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	22.5		B	V			22.5	MG/KG	40
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	22.9		B	V			22.9	MG/KG	40
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	23.1		B	V			23.1	MG/KG	40
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	24		B	V			24	MG/KG	40
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	26.1		B	V			26.1	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	STRONTIUM	27.7145		B	Z			27.7145	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	28.8		B	V			28.8	MG/KG	40
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	30.2		B	V			30.2	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	32.3		B	V			32.3	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	STRONTIUM	33.4274		B	Z			33.4274	MG/KG	40
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	33.5		B	V			33.5	MG/KG	40
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	STRONTIUM	35.4		B	JA	9		35.4	MG/KG	40
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	36.5		B	V			36.5	MG/KG	40
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	43.5			V			43.5	MG/KG	40
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	44.6			V			44.6	MG/KG	40
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	44.7			V			44.7	MG/KG	40
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	STRONTIUM	45.2			V			45.2	MG/KG	40
SS105494	D1	SS00106EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.77	.77	U	JA	8		0.385	MG/KG	2
SS106894	P2	SS00120EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.8	.8	U	JA	8		0.4	MG/KG	2
SS106594	P3	SS00117EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.8	.8	U	R	8		0.4	MG/KG	2
SS105394	D2	SS00105EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.81	.81	U	JA	8		0.405	MG/KG	2
SS106494	P5	SS00116EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.81	.81	U	JA	8		0.405	MG/KG	2
SS105894	V4	SS00110EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.81	.81	U	JA	8		0.405	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	DUP	THALLIUM	0.815	.815	U	Z			0.4075	MG/KG	2
SS106694	V1	SS00118EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.82	.82	U	JA	8		0.41	MG/KG	2
SS107294	P7	SS00125EG	08-JUN-94	27-JUN-94	REAL	TRG	THALLIUM	0.82	.82	U	V			0.41	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	DUP	THALLIUM	0.8285	.8285	U	Z			0.41425	MG/KG	2
SS107094	D5	SS00122EG	08-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.83	.83	U	JA	8		0.415	MG/KG	2
SS107294	P7	SS00103EG	08-JUN-94	20-JUN-94	DUP	TRG	THALLIUM	0.83	.83	U	R	8		0.415	MG/KG	2
SS106794	P1	SS00119EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.83	.83	U	R	8		0.415	MG/KG	2
SS106094	V6	SS00112EG	08-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.83	.83	U	JA	8		0.415	MG/KG	2
SS107194	P6	SS00123EG	08-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.83	.83	U	R	8		0.415	MG/KG	2

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	IDL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS105594	V2	SS00107EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.84	.84	U	JA	8		0.42	MG/KG	2
SS105994	V5	SS00111EG	08-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.84	.84	U	R	8		0.42	MG/KG	2
SS106394	P4	SS00115EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.84	.84	U	R	8		0.42	MG/KG	2
SS106194	V7	SS00113EG	08-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.85	.85	U	JA	8		0.425	MG/KG	2
SS105694	D3	SS00108EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.85	.85	U	V			0.425	MG/KG	2
SS105794	V3	SS00109EG	07-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.86	.86	U	JA	8		0.43	MG/KG	2
SS106994	D4	SS00121EG	08-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.89	.89	U	JA	8		0.445	MG/KG	2
SS106294	D6	SS00114EG	08-JUN-94	20-JUN-94	REAL	TRG	THALLIUM	0.88		B	R	8		0.88	MG/KG	2
SS107294	P7	SS00124EG	08-JUN-94	22-JUN-94	RNS	TRG	THALLIUM	2	2	U	V			1	UG/L	10
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	TIN	2.7	2.7	U	JA	7		1.35	MG/KG	40
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	2.7	2.7	U	JA	7		1.35	MG/KG	40
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	3	3	U	JA	7		1.5	MG/KG	40
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	3	3	U	JA	7		1.5	MG/KG	40
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	3.3	3.3	U	JA	7		1.65	MG/KG	40
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	3.4	3.4	U	JA	7		1.7	MG/KG	40
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	3.6	3.6	U	JA	7		1.8	MG/KG	40
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	3.6	3.6	U	JA	7		1.8	MG/KG	40
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	3.7	3.7	U	JA	7		1.85	MG/KG	40
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	4.1	4.1	U	JA	7		2.05	MG/KG	40
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	4.1	4.1	U	JA	7		2.05	MG/KG	40
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	4.4	4.4	U	JA	7		2.2	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	4.4	4.4	U	JA	7		2.2	MG/KG	40
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	4.5	4.5	U	JA	7		2.25	MG/KG	40
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	4.5	4.5	U	JA	7		2.25	MG/KG	40
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	4.6	4.6	U	JA	7		2.3	MG/KG	40
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	4.7	4.7	U	JA	7		2.35	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	4.9	4.9	U	JA	7		2.45	MG/KG	40
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	TIN	5.1	5.1	U	JA	7		2.55	MG/KG	40
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	5.1	5.1	U	JA	7		2.55	MG/KG	40
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	TIN	5.8	5.8	U	JA	7		2.9	MG/KG	40
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	TIN	4.6543		B	Z			4.6543	MG/KG	40
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	TIN	4.8452		B	Z			4.8452	MG/KG	40
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	TIN	10	10	U	V			5	UG/L	200
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	VANADIUM	2	2	U	V			1	UG/L	50
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	10.8			V			10.8	MG/KG	10
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	17.5			V			17.5	MG/KG	10
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	18			V			18	MG/KG	10
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	23.1			V			23.1	MG/KG	10
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	23.3			V			23.3	MG/KG	10
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	23.6			V			23.6	MG/KG	10
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	24.5			V			24.5	MG/KG	10

INORGANICS: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT1	DL	QUAL	VAL	R1	R2	RESULT2	UNITS	CRDL
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	24.8			V			24.8	MG/KG	10
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	26.5			V			26.5	MG/KG	10
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	28.3			V			28.3	MG/KG	10
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	28.6			V			28.6	MG/KG	10
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	29			V			29	MG/KG	10
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	VANADIUM	29.0153			Z			29.0153	MG/KG	10
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	30.4			V			30.4	MG/KG	10
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	30.8			V			30.8	MG/KG	10
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	31.2			V			31.2	MG/KG	10
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	32.6			V			32.6	MG/KG	10
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	34.2			V			34.2	MG/KG	10
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	35.6			V			35.6	MG/KG	10
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	36.1			V			36.1	MG/KG	10
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	VANADIUM	39.3647			Z			39.3647	MG/KG	10
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	VANADIUM	41.7			V			41.7	MG/KG	10
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	VANADIUM	45.8			V			45.8	MG/KG	10
SS107294	P7	SS00124EG	08-JUN-94	15-JUN-94	RNS	TRG	ZINC	8.6	8.6	U	JA	7		4.3	UG/L	20
SS105494	D1	SS00106EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	21.1		E	JA	17		21.1	MG/KG	4
SS106694	V1	SS00118EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	35.5		E	JA	17		35.5	MG/KG	4
SS106594	P3	SS00117EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	39.5		E	JA	17		39.5	MG/KG	4
SS105894	V4	SS00110EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	40.3		E	JA	17		40.3	MG/KG	4
SS105794	V3	SS00109EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	41.2		E	JA	17		41.2	MG/KG	4
SS106494	P5	SS00116EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	41.2		E	JA	17		41.2	MG/KG	4
SS105394	D2	SS00105EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	43.7		E	JA	17		43.7	MG/KG	4
SS107094	D5	SS00122EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	45.4		E	JA	17		45.4	MG/KG	4
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	DUP	ZINC	45.6398			Z			45.6398	MG/KG	4
SS106394	P4	SS00115EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	46.4		E	JA	17		46.4	MG/KG	4
SS106794	P1	SS00119EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	47.7		E	JA	17		47.7	MG/KG	4
SS107194	P6	SS00123EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	48.3		E	JA	17		48.3	MG/KG	4
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	DUP	ZINC	53.5784			Z			53.5784	MG/KG	4
SS106894	P2	SS00120EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	55		E	JA	17		55	MG/KG	4
SS106194	V7	SS00113EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	55.6		E	JA	17		55.6	MG/KG	4
SS106094	V6	SS00112EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	56		E	JA	17		56	MG/KG	4
SS107294	P7	SS00103EG	08-JUN-94	23-JUN-94	DUP	TRG	ZINC	57.6		E	JA	17		57.6	MG/KG	4
SS105694	D3	SS00108EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	58.3		E	JA	17		58.3	MG/KG	4
SS106994	D4	SS00121EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	59.3		E	JA	17		59.3	MG/KG	4
SS107294	P7	SS00125EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	59.9			V			59.9	MG/KG	4
SS106294	D6	SS00114EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	60.5		E	JA	17		60.5	MG/KG	4
SS105994	V5	SS00111EG	08-JUN-94	23-JUN-94	REAL	TRG	ZINC	64.7		E	JA	17		64.7	MG/KG	4
SS105594	V2	SS00107EG	07-JUN-94	23-JUN-94	REAL	TRG	ZINC	75.9		E	JA	17		75.9	MG/KG	4

NATURALLY OCCURRING RADIONUCLIDES

This section includes the raw data spreadsheets for the naturally occurring radionuclides. They are organized as indicated in the introduction of Appendix B, except the Type2 column was eliminated and a sampling date (Sampdate) column, analysis date (Analdate) column and an error column (Err) were added.

NATURALLY OCCURRING RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R4	CRDL
SS106994	D4	SS00121EG	08-JUN-94	30-JUL-94	REAL	TRG	CESIUM-134	0.06	PCI/G		U	V			0.06
SS106394	P4	SS00115EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.07	PCI/G		U	V			0.07
SS106294	D6	SS00114EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.07	PCI/G		U	V			0.07
SS107094	D5	SS00122EG	08-JUN-94	30-JUL-94	REAL	TRG	CESIUM-134	0.07	PCI/G		U	V		78	0.07
SS106494	P5	SS00116EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.08	PCI/G		U	V			0.08
SS106194	V7	SS00113EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.08	PCI/G		U	V			0.08
SS107194	P6	SS00123EG	08-JUN-94	30-JUL-94	REAL	TRG	CESIUM-134	0.08	PCI/G		U	V			0.08
SS105494	D1	SS00106EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.09	PCI/G		U	V			0.09
SS105394	D2	SS00105EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V			0.1
SS105794	V3	SS00109EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V			0.1
SS105994	V5	SS00111EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V			0.1
SS105594	V2	SS00107EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V			0.1
SS105694	D3	SS00108EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V			0.1
SS107294	P7	SS00125EG	08-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS107294	P7	SS00103EG	08-JUN-94	01-AUG-94	DUP	REP	CESIUM-134	0.2	PCI/G		U	V			0.2
SS105394	D2	SS00105EG	07-JUN-94	01-AUG-94	REAL	REP	CESIUM-134	0.2	PCI/G		U	V			0.2
SS107294	P7	SS00103EG	08-JUN-94	29-JUL-94	DUP	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS105894	V4	SS00110EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS106594	P3	SS00117EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS106894	P2	SS00120EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS106694	V1	SS00118EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS106094	V6	SS00112EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS106794	P1	SS00119EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V			0.2
SS106994	D4	SS00121EG	08-JUN-94	30-JUL-94	REAL	TRG	CESIUM-137	0.07	PCI/G		U	V			0.07
SS105494	D1	SS00106EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	0.09	PCI/G		U	V			0.09
SS105394	D2	SS00105EG	07-JUN-94	01-AUG-94	REAL	REP	CESIUM-137	0.23	PCI/G	0.13	J	V		78	0.15
SS106294	D6	SS00114EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	0.32	PCI/G	0.064	J	V		78	0.07
SS105394	D2	SS00105EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	0.33	PCI/G	0.095	J	V		78	0.11
SS106194	V7	SS00113EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	0.42	PCI/G	0.075	J	V		78	0.07
SS107094	D5	SS00122EG	08-JUN-94	30-JUL-94	REAL	TRG	CESIUM-137	0.62	PCI/G	0.075		V			0.07
SS107194	P6	SS00123EG	08-JUN-94	30-JUL-94	REAL	TRG	CESIUM-137	0.64	PCI/G	0.088		V		78	0.09
SS105694	D3	SS00108EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	0.73	PCI/G	0.15		V		78	0.13
SS105594	V2	SS00107EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	0.74	PCI/G	0.11		V		78	0.11
SS107294	P7	SS00125EG	08-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	0.77	PCI/G	0.20		V		78	0.2
SS107294	P7	SS00103EG	08-JUN-94	01-AUG-94	DUP	REP	CESIUM-137	0.87	PCI/G	0.18		V		78	0.15
SS106694	V1	SS00118EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-137	0.88	PCI/G	0.20		V		78	0.16
SS107294	P7	SS00103EG	08-JUN-94	29-JUL-94	DUP	TRG	CESIUM-137	0.89	PCI/G	0.20		V		78	0.31
SS105794	V3	SS00109EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	1	PCI/G	0.15		V		78	0.1
SS106794	P1	SS00119EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-137	1	PCI/G	0.22		V		78	0.16
SS105994	V5	SS00111EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	1.1	PCI/G	0.17		V		78	0.13
SS106394	P4	SS00115EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	1.2	PCI/G	0.092		V		78	0.08
SS105894	V4	SS00110EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	1.2	PCI/G	0.22		V		78	0.17

NATURALLY OCCURRING RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R3	R4	CRDL
SS106494	P5	SS00116EG	07-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	1.2	PCI/G	0.085		V		78	0.07
SS106094	V6	SS00112EG	08-JUN-94	29-JUL-94	REAL	TRG	CESIUM-137	1.2	PCI/G	0.17		V		78	0.09
SS106894	P2	SS00120EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-137	1.4	PCI/G	0.22		V		78	0.17
SS106594	P3	SS00117EG	07-JUN-94	30-JUL-94	REAL	TRG	CESIUM-137	1.8	PCI/G	0.23		V		78	0.18
SS106994	D4	SS00121EG	08-JUN-94	30-JUL-94	REAL	TRG	RADIUM-226	0.1	PCI/G		U	V			0.1
SS107294	P7	SS00124EG	08-JUN-94	04-OCT-94	RNS	TRG	RADIUM-226	0.13	PCI/L	0.28	U	Y			0.5
SS106194	V7	SS00113EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.48	PCI/G	0.10	J	V		78	0.11
SS107294	P7	SS00103EG	08-JUN-94	29-JUL-94	DUP	TRG	RADIUM-226	0.52	PCI/G	0.33		V		78	0.32
SS105494	D1	SS00106EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.53	PCI/G	0.15		V		78	0.15
SS105794	V3	SS00109EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.55	PCI/G	0.25		V		78	0.27
SS106694	V1	SS00118EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM-226	0.57	PCI/G	0.27		V		78	0.27
SS105594	V2	SS00107EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.58	PCI/G	0.20		V		78	0.2
SS105894	V4	SS00110EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.58	PCI/G	0.31		V		78	0.35
SS106294	D6	SS00114EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.59	PCI/G	0.11		V		78	0.1
SS107194	P6	SS00123EG	08-JUN-94	30-JUL-94	REAL	TRG	RADIUM-226	0.61	PCI/G	0.12		V		78	0.13
SS106894	P2	SS00120EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM-226	0.61	PCI/G	0.29		V		78	0.31
SS105694	D3	SS00108EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.63	PCI/G	0.22		V		78	0.2
SS107094	D5	SS00122EG	08-JUN-94	30-JUL-94	REAL	TRG	RADIUM-226	0.64	PCI/G	0.13		V		78	0.12
SS106794	P1	SS00119EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM-226	0.67	PCI/G	0.24		V		78	0.2
SS105994	V5	SS00111EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.67	PCI/G	0.21		V		78	0.21
SS106394	P4	SS00115EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.68	PCI/G	0.13		V		78	0.13
SS105394	D2	SS00105EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.7	PCI/G	0.13		V		78	0.15
SS106494	P5	SS00116EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.74	PCI/G	0.13		V		78	0.13
SS106594	P3	SS00117EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM-226	0.79	PCI/G	0.29		V		78	0.28
SS106094	V6	SS00112EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-226	0.8	PCI/G	0.24		V		78	0.25
SS107294	P7	SS00103EG	08-JUN-94	01-AUG-94	DUP	REP	RADIUM-226	0.85	PCI/G	0.26		V		78	0.25
SS107294	P7	SS00125EG	08-JUN-94	01-AUG-94	REAL	TRG	RADIUM-226	0.87	PCI/G	0.32		V		78	0.34
SS105394	D2	SS00105EG	07-JUN-94	01-AUG-94	REAL	REP	RADIUM-226	0.91	PCI/G	0.28		V		78	0.27
SS107294	P7	SS00124EG	08-JUN-94	09-AUG-94	RNS	TRG	RADIUM-228	-0.27	PCI/L	0.52	U	Y			2
SS106994	D4	SS00121EG	08-JUN-94	30-JUL-94	REAL	TRG	RADIUM-228	0.2	PCI/G		UX	V			0.2
SS105794	V3	SS00109EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	0.92	PCI/G	0.57	X	V		78	0.57
SS107294	P7	SS00103EG	08-JUN-94	29-JUL-94	DUP	TRG	RADIUM-228	0.98	PCI/G	0.68	X	V		78	0.75
SS105694	D3	SS00108EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	0.99	PCI/G	0.44	X	V		78	0.41
SS105594	V2	SS00107EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1	PCI/G	0.41	X	V		78	0.44
SS106194	V7	SS00113EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1	PCI/G	0.24	X	V		78	0.23
SS107094	D5	SS00122EG	08-JUN-94	30-JUL-94	REAL	TRG	RADIUM-228	1	PCI/G	0.28	X	V		78	0.28
SS106094	V6	SS00112EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1	PCI/G	0.62	X	V		78	0.72
SS106294	D6	SS00114EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1.2	PCI/G	0.26	X	V		78	0.25
SS107294	P7	SS00125EG	08-JUN-94	01-AUG-94	REAL	TRG	RADIUM-228	1.3	PCI/G	0.61	X	V		78	0.65
SS105994	V5	SS00111EG	08-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1.3	PCI/G	0.56	X	V		78	0.57
SS106894	P2	SS00120EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM 228	1.4	PCI/G	0.63	X	V		78	0.64
SS106794	P1	SS00119EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM 228	1.4	PCI/G	0.66	X	V		78	0.6

NATURALLY OCCURRING RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R4	CRDL
SS105494	D1	SS00106EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1.5	PCI/G	0.35	X	V		78	0.34
SS107194	P6	SS00123EG	08-JUN-94	30-JUL-94	REAL	TRG	RADIUM-228	1.5	PCI/G	0.26	X	V		78	0.24
SS106694	V1	SS00118EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM-228	1.5	PCI/G	0.71	X	V		78	0.71
SS105894	V4	SS00110EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1.6	PCI/G	0.53	X	V		78	0.34
SS107294	P7	SS00103EG	08-JUN-94	01-AUG-94	DUP	REP	RADIUM-228	1.7	PCI/G	0.58	X	V		78	0.44
SS106394	P4	SS00115EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	1.8	PCI/G	0.28	X	V		78	0.26
SS106494	P5	SS00116EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	2	PCI/G	0.28	X	V		78	0.27
SS106594	P3	SS00117EG	07-JUN-94	30-JUL-94	REAL	TRG	RADIUM-228	2.1	PCI/G	0.58	X	V		78	0.45
SS105394	D2	SS00105EG	07-JUN-94	29-JUL-94	REAL	TRG	RADIUM-228	2.3	PCI/G	0.43	X	V		78	0.35
SS105394	D2	SS00105EG	07-JUN-94	01-AUG-94	REAL	REP	RADIUM-228	2.3	PCI/G	0.56	X	V		78	0.53
SS107294	P7	SS00124EG	08-JUN-94	10-AUG-94	RNS	TRG	URANIUM-233,-234	0.002	PCI/L	0.018	U	Y			0.03
SS106194	V7	SS00113EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.66	PCI/G	0.038		V			0.007
SS105794	V3	SS00109EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.73	PCI/G	0.045		V			0.01
SS106994	D4	SS00121EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.78	PCI/G	0.055		V			0.01
SS105594	V2	SS00107EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.79	PCI/G	0.051		V			0.01
SS107294	P7	SS00103EG	08-JUN-94	05-AUG-94	DUP	TRG	URANIUM-233,-234	0.81	PCI/G	0.044		V			0.007
SS107294	P7	SS00125EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.81	PCI/G	0.059		V			0.01
SS106794	P1	SS00119EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.81	PCI/G	0.058		V			0.01
SS107194	P6	SS00123EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.85	PCI/G	0.059		V			0.01
SS107294	P7	SS00103EG	08-JUN-94	07-AUG-94	DUP	REP	URANIUM-233,-234	0.85	PCI/G	0.062		V			0.01
SS105994	V5	SS00111EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.91	PCI/G	0.048		V			0.008
SS106694	V1	SS00118EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.94	PCI/G	0.051		V			0.009
SS105694	D3	SS00108EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.94	PCI/G	0.050		V			0.009
SS107094	D5	SS00122EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.95	PCI/G	0.063		V			0.01
SS105894	V4	SS00110EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	0.96	PCI/G	0.051		V			0.009
SS106094	V6	SS00112EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	1	PCI/G	0.049		V			0.007
SS106894	P2	SS00120EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	1	PCI/G	0.068		V			0.01
SS106294	D6	SS00114EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	1.1	PCI/G	0.054		V			0.009
SS106494	P5	SS00116EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	1.1	PCI/G	0.077		V			0.01
SS106594	P3	SS00117EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	1.1	PCI/G	0.056		V			0.01
SS106394	P4	SS00115EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	1.1	PCI/G	0.056		V			0.009
SS105494	D1	SS00106EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	2.3	PCI/G	0.12		V			0.01
SS105394	D2	SS00105EG	07-JUN-94	06-AUG-94	REAL	REP	URANIUM-233,-234	2.6	PCI/G	0.11		R	30		0.01
SS105394	D2	SS00105EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-233,-234	3.1	PCI/G	0.15		V			0.02
SS107294	P7	SS00124EG	08-JUN-94	10-AUG-94	RNS	TRG	URANIUM-235	0.007	PCI/L	0.013	U	Y			0.02
SS107294	P7	SS00125EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.033	PCI/G	0.012	J	V			0.009
SS106194	V7	SS00113EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.034	PCI/G	0.008	J	V			0.003
SS107294	P7	SS00103EG	08-JUN-94	07-AUG-94	DUP	REP	URANIUM-235	0.034	PCI/G	0.012	J	V			0.008
SS107294	P7	SS00103EG	08-JUN-94	05-AUG-94	DUP	TRG	URANIUM-235	0.035	PCI/G	0.008	J	V			0.005
SS106794	P1	SS00119EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.038	PCI/G	0.011	J	V			0.008
SS105594	V2	SS00107EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.04	PCI/G	0.010	J	V			0.005
SS105994	V5	SS00111EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.041	PCI/G	0.009	J	V			0.004

NATURALLY OCCURRING RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	CRDL
SS107194	P6	SS00123EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.042	PCI/G	0.011	J	V			0.006
SS107094	D5	SS00122EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.042	PCI/G	0.012	J	V			0.008
SS106994	D4	SS00121EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.043	PCI/G	0.013	J	V			0.007
SS105794	V3	SS00109EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.044	PCI/G	0.010	J	V			0.004
SS105894	V4	SS00110EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.046	PCI/G	0.010	J	V			0.004
SS106094	V6	SS00112EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.049	PCI/G	0.010	J	V			0.003
SS106494	P5	SS00116EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.052	PCI/G	0.016	J	V			0.009
SS106894	P2	SS00120EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.052	PCI/G	0.014	J	V			0.007
SS106394	P4	SS00115EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.055	PCI/G	0.011	J	V			0.004
SS106694	V1	SS00118EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.056	PCI/G	0.011	J	V			0.004
SS105694	D3	SS00108EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.058	PCI/G	0.011	J	V			0.004
SS106294	D6	SS00114EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.064	PCI/G	0.011	J	V			0.004
SS106594	P3	SS00117EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.077	PCI/G	0.013	J	V			0.004
SS105494	D1	SS00106EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.1	PCI/G	0.017	J	V			0.007
SS105394	D2	SS00105EG	07-JUN-94	06-AUG-94	REAL	REP	URANIUM-235	0.11	PCI/G	0.016	J	R	30		0.006
SS105394	D2	SS00105EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-235	0.11	PCI/G	0.018	J	V			0.006
SS107294	P7	SS00124EG	08-JUN-94	10-AUG-94	RNS	TRG	URANIUM-238	0.007	PCI/L	0.011	U	Y			0.01
SS106194	V7	SS00113EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.74	PCI/G	0.041		V			0.006
SS105594	V2	SS00107EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.8	PCI/G	0.051		V			0.008
SS105794	V3	SS00109EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.81	PCI/G	0.049		V			0.008
SS107294	P7	SS00125EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.83	PCI/G	0.060		V			0.01
SS106994	D4	SS00121EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.83	PCI/G	0.057		V			0.01
SS107294	P7	SS00103EG	08-JUN-94	05-AUG-94	DUP	TRG	URANIUM-238	0.84	PCI/G	0.045		V			0.007
SS107294	P7	SS00103EG	08-JUN-94	07-AUG-94	DUP	REP	URANIUM-238	0.86	PCI/G	0.062		V			0.009
SS105694	D3	SS00108EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.87	PCI/G	0.047		V			0.008
SS106794	P1	SS00119EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.89	PCI/G	0.061		V			0.009
SS105994	V5	SS00111EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.9	PCI/G	0.048		V			0.007
SS107094	D5	SS00122EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.92	PCI/G	0.061		V			0.009
SS107194	P6	SS00123EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.92	PCI/G	0.062		V			0.009
SS106094	V6	SS00112EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	0.98	PCI/G	0.049		V			0.007
SS105894	V4	SS00110EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	1	PCI/G	0.052		V			0.007
SS106694	V1	SS00118EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	1	PCI/G	0.053		V			0.008
SS106894	P2	SS00120EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	1.1	PCI/G	0.068		V			0.01
SS106294	D6	SS00114EG	08-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	1.1	PCI/G	0.053		V			0.008
SS106394	P4	SS00115EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	1.1	PCI/G	0.057		V			0.008
SS106494	P5	SS00116EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	1.1	PCI/G	0.080		V			0.01
SS106594	P3	SS00117EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	1.2	PCI/G	0.059		V			0.009
SS105494	D1	SS00106EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	2.1	PCI/G	0.11		V			0.01
SS105394	D2	SS00105EG	07-JUN-94	06-AUG-94	REAL	REP	URANIUM-238	2.3	PCI/G	0.10		R	30		0.01
SS105394	D2	SS00105EG	07-JUN-94	07-AUG-94	REAL	TRG	URANIUM-238	2.6	PCI/G	0.13		V			0.01

FALLOUT RADIONUCLIDES

This section includes the raw data spreadsheets for fallout radionuclides. They are organized as indicated in the introduction of Appendix A, except the Type2 column was eliminated and a sampling date (Sampdate) column, analysis date (Analdate) column and an error column (Err) were added.

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	R4	CRDL
SS108994	MW2	SS00145EG	22-JUN-94	25-AUG-94	RNS	TRG	AMERICIUM-241	-0.001	PCI/L	0.003	U	V				0.006
SS110594	AF3	SS00159EG	30-JUN-94	23-AUG-94	REAL	TRG	AMERICIUM-241	0.001	PCI/G	0.006	U	A	70			0.01
SS109994	DP2	SS00153EG	28-JUN-94	23-AUG-94	REAL	TRG	AMERICIUM-241	0.002	PCI/G	0.005	U	V				0.008
SS110894	CM3	SS00168EG	01-JUL-94	22-AUG-94	RNS	TRG	AMERICIUM-241	0.002	PCI/L	0.007	U	Y				0.01
SS110394	AF1	SS00157EG	30-JUN-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.002	PCI/G	0.004	U	V				0.008
SS110294	CR1	SS00156EG	29-JUN-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.002	PCI/G	0.004	U	V				0.006
SS109094	RR1	SS00143EG	22-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.004	PCI/G	0.005	U	V				0.008
SS109694	PR2	SS00166EG	27-JUN-94	23-AUG-94	RNS	TRG	AMERICIUM-241	0.004	PCI/L	0.003	BJ	V				0.004
SS108394	ES2	SS00136EG	16-JUN-94	19-AUG-94	REAL	TRG	AMERICIUM-241	0.004	PCI/G	0.008	U	V				0.01
SS109394	FW1	SS00147EG	23-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.004	PCI/G	0.005	U	V				0.007
SS104394	DR1	SS00094EG	16-MAY-94	18-AUG-94	REAL	TRG	AMERICIUM-241	0.005	PCI/G	0.006	U	V				0.007
SS110194	PP1	SS00155EG	29-JUN-94	24-AUG-94	REAL	REP	AMERICIUM-241	0.005	PCI/G	0.006	U	V				0.008
SS108894	MW1	SS00141EG	22-JUN-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.005	PCI/G	0.006	U	V				0.01
SS109294	JP1	SS00146EG	29-JUL-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.005	PCI/G	0.006	U	A	70			0.01
SS108994	MW2	SS00142EG	22-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.006	PCI/G	0.006	J	V				0.005
SS110194	PP1	SS00155EG	29-JUN-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.006	PCI/G	0.005	U	V				0.007
SS109894	DP1	SS00152EG	28-JUN-94	23-AUG-94	REAL	TRG	AMERICIUM-241	0.007	PCI/G	0.007	U	V				0.009
SS107894	RM3	SS00131EG	14-JUN-94	17-AUG-94	REAL	REP	AMERICIUM-241	0.007	PCI/G	0.008	U	V				0.01
SS104594	TH2	SS00096EG	24-MAY-94	17-AUG-94	REAL	TRG	AMERICIUM-241	0.007	PCI/G	0.006	U	V				0.01
SS105194	TH3	SS00102EG	01-JUN-94	18-AUG-94	REAL	TRG	AMERICIUM-241	0.007	PCI/G	0.005	J	V				0.005
SS107994	MR1	SS00132EG	15-JUN-94	18-AUG-94	REAL	TRG	AMERICIUM-241	0.007	PCI/G	0.006	J	V				0.007
SS109494	FW2	SS00148EG	23-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.007	PCI/G	0.008	U	V				0.01
SS104194	DR2	SS00091EG	23-MAY-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.008	PCI/G	0.007	U	V				0.01
SS109194	RR2	SS00144EG	22-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.007	U	V				0.01
SS110894	CM3	SS00162EG	01-JUL-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.008	U	V				0.01
SS110694	CM1	SS00160EG	01-JUL-94	23-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.007	J	V				0.006
SS109594	PR1	SS00149EG	27-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.007	J	V				0.006
SS110294	CR1	SS00167EG	29-JUN-94	24-AUG-94	DUP	TRG	AMERICIUM-241	0.009	PCI/G	0.005	J	V				0.005
SS111094	JP3	SS00164EG	29-JUL-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.008	J	A	70			0.009
SS110494	AF2	SS00158EG	30-JUN-94	23-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.006	J	V				0.006
SS104894	TM3	SS00099EG	25-MAY-94	18-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.006	J	V				0.009
SS111194	JP2	SS00165EG	29-JUL-94	25-AUG-94	REAL	TRG	AMERICIUM-241	0.009	PCI/G	0.009	U	V				0.01
SS108194	MR3	SS00134EG	16-JUN-94	19-AUG-94	REAL	TRG	AMERICIUM-241	0.01	PCI/G	0.009	J	V				0.01
SS111194	JP2	SS00169EG	29-JUL-94	24-AUG-94	DUP	TRG	AMERICIUM-241	0.01	PCI/G	0.009	J	V				0.01
SS107894	RM3	SS00131EG	14-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.01	PCI/G	0.010	J	V				0.01
SS110094	DP3	SS00154EG	28-JUN-94	23-AUG-94	REAL	TRG	AMERICIUM-241	0.01	PCI/G	0.008	J	V				0.01
SS108794	GM3	SS00140EG	20-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.01	PCI/G	0.006	J	V				0.008
SS109794	PR3	SS00151EG	27-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.01	PCI/G	0.006	J	A	70			0.007
SS104994	TM4	SS00100EG	01-JUN-94	18-AUG-94	REAL	TRG	AMERICIUM-241	0.01	PCI/G	0.006	J	V				0.008
SS108194	MR3	SS00134EG	16-JUN-94	23-AUG-94	REAL	REP	AMERICIUM 241	0.01	PCI/G	0.006	J	V				0.007
SS105294	LH1	SS00104EG	01-JUN-94	17-AUG-94	REAL	TRG	AMERICIUM 241	0.012	PCI/G	0.008	J	V				0.01

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	R3	CRDL
SS104494	TH1	SS00095EG	24-MAY-94	18-AUG-94	REAL	TRG	AMERICIUM-241	0.012	PCI/G	0.006	J	V				0.006
SS107494	RM2	SS00127EG	14-JUN-94	23-AUG-94	REAL	REP	AMERICIUM-241	0.013	PCI/G	0.010	U	V				0.02
SS109694	PR2	SS00150EG	27-JUN-94	19-AUG-94	REAL	TRG	AMERICIUM-241	0.013	PCI/G	0.007	J	V				0.006
SS110794	CM2	SS00161EG	01-JUL-94	25-AUG-94	REAL	TRG	AMERICIUM-241	0.014	PCI/G	0.008	J	V				0.008
SS104694	TM1	SS00097EG	25-MAY-94	18-AUG-94	REAL	TRG	AMERICIUM-241	0.014	PCI/G	0.008	J	V				0.008
SS107494	RM2	SS00127EG	14-JUN-94	24-AUG-94	REAL	TRG	AMERICIUM-241	0.015	PCI/G	0.008	J	V				0.008
SS104794	TM2	SS00098EG	25-MAY-94	19-AUG-94	REAL	TRG	AMERICIUM-241	0.015	PCI/G	0.008	J	V				0.007
SS108594	GM1	SS00138EG	20-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.015	PCI/G	0.007	J	V				0.005
SS108494	ES3	SS00137EG	16-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.015	PCI/G	0.006	J	V				0.005
SS107794	BE1	SS00130EG	15-JUN-94	19-AUG-94	REAL	TRG	AMERICIUM-241	0.016	PCI/G	0.009	J	V				0.007
SS108694	GM2	SS00139EG	20-JUN-94	22-AUG-94	REAL	TRG	AMERICIUM-241	0.017	PCI/G	0.007	J	V				0.005
SS105094	TM5	SS00101EG	01-JUN-94	19-AUG-94	REAL	TRG	AMERICIUM-241	0.018	PCI/G	0.009	J	V				0.008
SS104294	DR3	SS00092EG	23-MAY-94	17-AUG-94	REAL	TRG	AMERICIUM-241	0.019	PCI/G	0.009	J	V				0.01
SS107594	BE3	SS00128EG	14-JUN-94	19-AUG-94	REAL	TRG	AMERICIUM-241	0.019	PCI/G	0.009	J	V				0.007
SS108094	MR2	SS00133EG	16-JUN-94	17-AUG-94	REAL	TRG	AMERICIUM-241	0.019	PCI/G	0.008	J	V				0.007
SS107694	BE2	SS00129EG	15-JUN-94	16-AUG-94	REAL	TRG	AMERICIUM-241	0.021	PCI/G	0.010		V				0.008
SS108294	ES1	SS00135EG	16-JUN-94	26-AUG-94	REAL	TRG	AMERICIUM-241	0.023	PCI/G	0.012		V				0.01
SS108094	MR2	SS00133EG	16-JUN-94	23-AUG-94	REAL	REP	AMERICIUM-241	0.024	PCI/G	0.008		V				0.006
SS107394	RM1	SS00126EG	14-JUN-94	17-AUG-94	REAL	TRG	AMERICIUM-241	0.025	PCI/G	0.010		V				0.01
SS104694	TM1	SS00093EG	25-MAY-94	18-AUG-94	DUP	TRG	AMERICIUM-241	0.031	PCI/G	0.012		V				0.01
SS111194	JP2	SS00169EG	29-JUL-94	18-AUG-94	DUP	TRG	CESIUM-134	0.05	PCI/G		U	V				0.05
SS110194	PP1	SS00155EG	29-JUN-94	17-AUG-94	REAL	REP	CESIUM-134	0.05	PCI/G		U	V				0.05
SS104394	DR1	SS00094EG	16-MAY-94	01-AUG-94	REAL	TRG	CESIUM-134	0.05	PCI/G		U	V				0.05
SS104694	TM1	SS00093EG	25-MAY-94	01-AUG-94	DUP	TRG	CESIUM-134	0.06	PCI/G		U	V				0.06
SS104894	TM3	SS00099EG	25-MAY-94	01-AUG-94	REAL	TRG	CESIUM-134	0.07	PCI/G		U	V				0.07
SS104494	TH1	SS00095EG	24-MAY-94	01-AUG-94	REAL	TRG	CESIUM-134	0.08	PCI/G		U	V				0.08
SS110494	AF2	SS00158EG	30-JUN-94	16-AUG-94	REAL	TRG	CESIUM-134	0.08	PCI/G		U	V				0.08
SS108094	MR2	SS00133EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.09	PCI/G		U	V				0.09
SS111094	JP3	SS00164EG	29-JUL-94	16-AUG-94	REAL	TRG	CESIUM-134	0.09	PCI/G		U	V				0.09
SS108194	MR3	SS00134EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.09	PCI/G		U	V				0.09
SS105194	TH3	SS00102EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS108494	ES3	SS00137EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS104594	TH2	SS00096EG	24-MAY-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS107394	RM1	SS00126EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS104294	DR3	SS00092EG	23-MAY-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS109494	FW2	SS00148EG	23-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS107894	RM3	SS00131EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS104194	DR2	SS00091EG	23-MAY-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS111194	JP2	SS00165EG	29-JUL-94	16-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS107594	BE3	SS00128EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS110594	AF3	SS00159EG	30-JUN-94	16-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	R4	CRDL
SS108094	MR2	SS00133EG	16-JUN-94	03-AUG-94	REAL	REP	CESIUM-134	0.1	PCI/G		U	V				0.1
SS110294	CR1	SS00156EG	29-JUN-94	16-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS107794	BE1	SS00130EG	15-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS108194	MR3	SS00134EG	16-JUN-94	03-AUG-94	REAL	REP	CESIUM-134	0.1	PCI/G		U	V				0.1
SS108994	MW2	SS00142EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.1	PCI/G		U	V				0.1
SS110194	PP1	SS00155EG	29-JUN-94	18-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109294	JP1	SS00146EG	29-JUL-94	16-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS104994	TM4	SS00100EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS108394	ES2	SS00136EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS107694	BE2	SS00129EG	15-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS108694	GM2	SS00139EG	20-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS104794	TM2	SS00098EG	25-MAY-94	02-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS107994	MR1	SS00132EG	15-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS108594	GM1	SS00138EG	20-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS108894	MW1	SS00141EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109394	FW1	SS00147EG	23-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS104694	TM1	SS00097EG	25-MAY-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS108794	GM3	SS00140EG	20-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109194	RR2	SS00144EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109894	DP1	SS00152EG	28-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS107894	RM3	SS00131EG	14-JUN-94	02-AUG-94	REAL	REP	CESIUM-134	0.2	PCI/G		U	V				0.2
SS105094	TM5	SS00101EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS110294	CR1	SS00167EG	29-JUN-94	16-AUG-94	DUP	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS107494	RM2	SS00127EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS107494	RM2	SS00127EG	14-JUN-94	02-AUG-94	REAL	REP	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109094	RR1	SS00143EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109994	DP2	SS00153EG	28-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS110694	CM1	SS00160EG	01-JUL-94	16-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS108294	ES1	SS00135EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109794	PR3	SS00151EG	27-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS110394	AF1	SS00157EG	30-JUN-94	16-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS105294	LH1	SS00104EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS110094	DP3	SS00154EG	28-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS110794	CM2	SS00161EG	01-JUL-94	18-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109594	PR1	SS00149EG	27-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS110894	CM3	SS00162EG	01-JUL-94	16-AUG-94	REAL	TRG	CESIUM-134	0.2	PCI/G		U	V				0.2
SS109694	PR2	SS00150EG	27-JUN-94	03-AUG-94	REAL	TRG	CESIUM-134	0.3	PCI/G		U	V				0.3
SS109394	FW1	SS00147EG	23-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.3	PCI/G	0.11		V	78			0.1
SS108894	MW1	SS00141EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.34	PCI/G	0.12		V	78			0.1
SS110294	CR1	SS00167EG	29-JUN-94	16-AUG-94	DUP	TRG	CESIUM-137	0.34	PCI/G	0.11		V	78			0.1
SS110594	AF3	SS00159EG	30-JUN-94	16-AUG-94	REAL	TRG	CESIUM-137	0.46	PCI/G	0.11		V	78			0.1

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	R3	CRDL
SS109094	RR1	SS00143EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.46	PCI/G	0.13		V	78			0.01
SS104394	DR1	SS00094EG	16-MAY-94	01-AUG-94	REAL	TRG	CESIUM-137	0.47	PCI/G	0.047	J	V			78	0.05
SS110294	CR1	SS00156EG	29-JUN-94	16-AUG-94	REAL	TRG	CESIUM-137	0.51	PCI/G	0.093		V	78			0.01
SS104594	TH2	SS00096EG	24-MAY-94	01-AUG-94	REAL	TRG	CESIUM-137	0.52	PCI/G	0.14		V			78	0.12
SS107994	MR1	SS00132EG	15-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	0.59	PCI/G	0.16		V			78	0.14
SS108994	MW2	SS00142EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.61	PCI/G	0.18		V	78			0.2
SS109194	RR2	SS00144EG	22-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.61	PCI/G	0.16		V	78			0.2
SS108394	ES2	SS00136EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.64	PCI/G	0.16		V	78			0.1
SS110494	AF2	SS00158EG	30-JUN-94	16-AUG-94	REAL	TRG	CESIUM-137	0.64	PCI/G	0.092		V	78			0.1
SS110394	AF1	SS00157EG	30-JUN-94	16-AUG-94	REAL	TRG	CESIUM-137	0.71	PCI/G	0.14		V	78			0.1
SS111194	JP2	SS00169EG	29-JUL-94	18-AUG-94	DUP	TRG	CESIUM-137	0.72	PCI/G	0.076		V	78			0.1
SS110094	DP3	SS00154EG	28-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.74	PCI/G	0.20		V	78			0.2
SS110694	CM1	SS00160EG	01-JUL-94	16-AUG-94	REAL	TRG	CESIUM-137	0.75	PCI/G	0.18		V	78			0.2
SS109794	PR3	SS00151EG	27-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.75	PCI/G	0.21		V	78			0.2
SS104194	DR2	SS00091EG	23-MAY-94	01-AUG-94	REAL	TRG	CESIUM-137	0.76	PCI/G	0.14		V			78	0.1
SS110794	CM2	SS00161EG	01-JUL-94	18-AUG-94	REAL	TRG	CESIUM-137	0.76	PCI/G	0.15		V	78			0.1
SS109894	DP1	SS00152EG	28-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.77	PCI/G	0.21		V	78			0.01
SS109494	FW2	SS00148EG	23-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.78	PCI/G	0.18		V	78			0.2
SS110894	CM3	SS00162EG	01-JUL-94	16-AUG-94	REAL	TRG	CESIUM-137	0.81	PCI/G	0.20		V	78			0.2
SS107894	RM3	SS00131EG	14-JUN-94	02-AUG-94	REAL	REP	CESIUM-137	0.81	PCI/G	0.19		V			78	0.18
SS109994	DP2	SS00153EG	28-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.81	PCI/G	0.18		V	78			0.2
SS105194	TH3	SS00102EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	0.84	PCI/G	0.15		V			78	0.13
SS109594	PR1	SS00149EG	27-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.86	PCI/G	0.19		V	78			0.2
SS110194	PP1	SS00155EG	29-JUN-94	18-AUG-94	REAL	TRG	CESIUM-137	0.86	PCI/G	0.17		V	78			0.2
SS107894	RM3	SS00131EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	0.89	PCI/G	0.16		V			78	0.15
SS109294	JP1	SS00146EG	29-JUL-94	16-AUG-94	REAL	TRG	CESIUM-137	0.91	PCI/G	0.18		V	78			0.2
SS107794	BE1	SS00130EG	15-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	0.94	PCI/G	0.17		V			78	0.17
SS111194	JP2	SS00165EG	29-JUL-94	16-AUG-94	REAL	TRG	CESIUM-137	0.95	PCI/G	0.099		V	78			0.1
SS104494	TH1	SS00095EG	24-MAY-94	01-AUG-94	REAL	TRG	CESIUM-137	0.96	PCI/G	0.060		V			78	0.05
SS108194	MR3	SS00134EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	0.98	PCI/G	0.10		V	78			0.1
SS107494	RM2	SS00127EG	14-JUN-94	02-AUG-94	REAL	REP	CESIUM-137	0.98	PCI/G	0.19		V			78	0.17
SS108794	GM3	SS00140EG	20-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	1	PCI/G	0.21		V	78			0.2
SS111094	JP3	SS00164EG	29-JUL-94	16-AUG-94	REAL	TRG	CESIUM-137	1	PCI/G	0.092		V	78			0.1
SS108194	MR3	SS00134EG	16-JUN-94	03-AUG-94	REAL	REP	CESIUM-137	1	PCI/G	0.14		V	78			0.1
SS107494	RM2	SS00127EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	1	PCI/G	0.20		V			78	0.22
SS104894	TM3	SS00099EG	25-MAY-94	01-AUG-94	REAL	TRG	CESIUM-137	1.1	PCI/G	0.073		V			78	0.07
SS108694	GM2	SS00139EG	20-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	1.1	PCI/G	0.22		V	78			0.2
SS108494	ES3	SS00137EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	1.1	PCI/G	0.16		V	78			0.2
SS110194	PP1	SS00155EG	29-JUN-94	17-AUG-94	REAL	REP	CESIUM-137	1.1	PCI/G	0.094		A	30	78		0.1
SS105294	LH1	SS00104EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	1.1	PCI/G	0.20		V			78	0.19
SS107594	BE3	SS00128EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	1.2	PCI/G	0.18		V			78	0.14

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLEID	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	R4	CRDL
SS109694	PR2	SS00150EG	27-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	1.2	PCI/G	0.22		V	78			0.2
SS107694	BE2	SS00129EG	15-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	1.4	PCI/G	0.21		V			78	0.2
SS107394	RM1	SS00126EG	14-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	1.4	PCI/G	0.18		V			78	0.12
SS108294	ES1	SS00135EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	1.4	PCI/G	0.21		V	78			0.4
SS108594	GM1	SS00138EG	20-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	1.5	PCI/G	0.19		V	78			0.2
SS108094	MR2	SS00133EG	16-JUN-94	03-AUG-94	REAL	TRG	CESIUM-137	1.5	PCI/G	0.12		V	78			0.1
SS108094	MR2	SS00133EG	16-JUN-94	03-AUG-94	REAL	REP	CESIUM-137	1.5	PCI/G	0.18		V	78			0.2
SS104994	TM4	SS00100EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	1.5	PCI/G	0.22		V			78	0.18
SS104794	TM2	SS00098EG	25-MAY-94	02-AUG-94	REAL	TRG	CESIUM-137	1.6	PCI/G	0.22		V			78	0.13
SS104694	TM1	SS00097EG	25-MAY-94	01-AUG-94	REAL	TRG	CESIUM-137	1.6	PCI/G	0.22		V			78	0.17
SS104294	DR3	SS00092EG	23-MAY-94	01-AUG-94	REAL	TRG	CESIUM-137	1.7	PCI/G	0.22		V			78	0.15
SS105094	TM5	SS00101EG	01-JUN-94	01-AUG-94	REAL	TRG	CESIUM-137	1.7	PCI/G	0.21		V			78	0.17
SS104694	TM1	SS00093EG	25-MAY-94	01-AUG-94	DUP	TRG	CESIUM-137	1.8	PCI/G	0.075		V			78	0.06
SS109694	PR2	SS00166EG	27-JUN-94	19-AUG-94	RNS	TRG	PLUTONIUM-239/240	0.004	PCI/L	0.006	U	V				0.01
SS110294	CR1	SS00167EG	29-JUN-94	24-AUG-94	DUP	TRG	PLUTONIUM-239/240	0.016	PCI/G	0.005	J	V				0.005
SS110594	AF3	SS00159EG	30-JUN-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.017	PCI/G	0.008	J	V				0.009
SS110294	CR1	SS00156EG	29-JUN-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.018	PCI/G	0.005	J	V				0.005
SS108994	MW2	SS00145EG	22-JUN-94	19-AUG-94	RNS	TRG	PLUTONIUM-239/240	0.018	PCI/L	0.010		V				0.01
SS108194	MR3	SS00134EG	16-JUN-94	23-AUG-94	REAL	REP	PLUTONIUM-239/240	0.019	PCI/G	0.006	J	R	30			0.004
SS110094	DP3	SS00154EG	28-JUN-94	17-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.021	PCI/G	0.011	J	V				0.01
SS109394	FW1	SS00147EG	23-JUN-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.022	PCI/G	0.010	J	V				0.009
SS110894	CM3	SS00162EG	01-JUL-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.022	PCI/G	0.010	J	V				0.009
SS108894	MW1	SS00141EG	22-JUN-94	23-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.023	PCI/G	0.009	J	V				0.007
SS104294	DR3	SS00092EG	23-MAY-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.024	PCI/G	0.010	J	V				0.006
SS104594	TH2	SS00096EG	24-MAY-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.024	PCI/G	0.008	J	V				0.005
SS107494	RM2	SS00127EG	14-JUN-94	22-AUG-94	REAL	REP	PLUTONIUM-239/240	0.024	PCI/G	0.009	J	R	30			0.008
SS107994	MR1	SS00132EG	15-JUN-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.025	PCI/G	0.010	J	V				0.006
SS104394	DR1	SS00094EG	16-MAY-94	12-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.025	PCI/G	0.010	J	V				0.009
SS108794	GM3	SS00140EG	20-JUN-94	28-SEP-94	REAL	RP1	PLUTONIUM-239/240	0.025	PCI/G	0.010	J	V				0.009
SS108994	MW2	SS00142EG	22-JUN-94	22-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.026	PCI/G	0.010	J	V				0.008
SS108394	ES2	SS00136EG	16-JUN-94	22-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.026	PCI/G	0.011	J	V				0.01
SS109294	JP1	SS00146EG	29-JUL-94	23-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.027	PCI/G	0.008	J	V				0.006
SS107894	RM3	SS00131EG	14-JUN-94	22-AUG-94	REAL	REP	PLUTONIUM-239/240	0.027	PCI/G	0.008	J	V				0.006
SS110494	AF2	SS00158EG	30-JUN-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.027	PCI/G	0.006	J	V				0.005
SS109194	RR2	SS00144EG	22-JUN-94	16-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.029	PCI/G	0.010	J	V				0.009
SS108794	GM3	SS00140EG	20-JUN-94	27-OCT-94	REAL	TR3	PLUTONIUM-239/240	0.029	PCI/G	0.010	J	V				0.007
SS104194	DR2	SS00091EG	23-MAY-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.029	PCI/G	0.008	J	V				0.006
SS111194	JP2	SS00165EG	29-JUL-94	23-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.03	PCI/G	0.008		V				0.007
SS108794	GM3	SS00140EG	20-JUN-94	26-OCT-94	REAL	RP2	PLUTONIUM-239/240	0.031	PCI/G	0.009		V				0.007
SS109594	PR1	SS00149EG	27-JUN-94	16-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.031	PCI/G	0.010		V				0.007
SS109894	DP1	SS00152EG	28-JUN-94	17-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.031	PCI/G	0.009		V				0.006

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLEID	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	R4	CRDL
SS108794	GM3	SS00140EG	20-JUN-94	28-SEP-94	REAL	TR2	PLUTONIUM-239/240	0.032	PCI/G	0.010		V				0.007
SS109094	RR1	SS00143EG	22-JUN-94	22-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.033	PCI/G	0.014		V				0.01
SS110694	CM1	SS00160EG	01-JUL-94	25-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.033	PCI/G	0.008		V				0.004
SS109794	PR3	SS00151EG	27-JUN-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.033	PCI/G	0.016		V				0.01
SS110394	AF1	SS00157EG	30-JUN-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.034	PCI/G	0.008		V				0.004
SS105194	TH3	SS00102EG	01-JUN-94	12-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.034	PCI/G	0.011		V				0.009
SS108694	GM2	SS00139EG	20-JUN-94	23-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.035	PCI/G	0.012		V				0.01
SS107894	RM3	SS00131EG	14-JUN-94	19-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.035	PCI/G	0.011		V				0.009
SS111194	JP2	SS00169EG	29-JUL-94	23-AUG-94	DUP	TRG	PLUTONIUM-239/240	0.036	PCI/G	0.009		V				0.007
SS109694	PR2	SS00150EG	27-JUN-94	16-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.036	PCI/G	0.010		V				0.005
SS110894	CM3	SS00168EG	01-JUL-94	24-AUG-94	RNS	TRG	PLUTONIUM-239/240	0.037	PCI/L	0.008		Y				0.004
SS104894	TM3	SS00099EG	25-MAY-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.037	PCI/G	0.012		V				0.007
SS107794	BE1	SS00130EG	15-JUN-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.037	PCI/G	0.010		V				0.006
SS108494	ES3	SS00137EG	16-JUN-94	19-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.038	PCI/G	0.012		V				0.01
SS110194	PP1	SS00155EG	29-JUN-94	24-AUG-94	REAL	REP	PLUTONIUM-239/240	0.04	PCI/G	0.012		V				0.01
SS108194	MR3	SS00134EG	16-JUN-94	19-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.04	PCI/G	0.012		V				0.006
SS105094	TM5	SS00101EG	01-JUN-94	09-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.041	PCI/G	0.015		V				0.01
SS110194	PP1	SS00155EG	29-JUN-94	24-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.043	PCI/G	0.008		V				0.004
SS107494	RM2	SS00127EG	14-JUN-94	10-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.044	PCI/G	0.007		V				0.002
SS104494	TH1	SS00095EG	24-MAY-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.044	PCI/G	0.010		V				0.005
SS109494	FW2	SS00148EG	23-JUN-94	16-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.046	PCI/G	0.011		V				0.005
SS107594	BE3	SS00128EG	14-JUN-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.046	PCI/G	0.014		V				0.01
SS108094	MR2	SS00133EG	16-JUN-94	12-AUG-94	REAL	REP	PLUTONIUM-239/240	0.047	PCI/G	0.011		A	30	70		0.004
SS107694	BE2	SS00129EG	15-JUN-94	09-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.05	PCI/G	0.016		V				0.01
SS104794	TM2	SS00098EG	25-MAY-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.05	PCI/G	0.013		V				0.007
SS105294	LH1	SS00104EG	01-JUN-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.052	PCI/G	0.013		V				0.006
SS108294	ES1	SS00135EG	16-JUN-94	19-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.054	PCI/G	0.015		V				0.008
SS110794	CM2	SS00161EG	01-JUL-94	26-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.055	PCI/G	0.011		V				0.007
SS111094	JP3	SS00164EG	29-JUL-94	23-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.055	PCI/G	0.011		V				0.005
SS109994	DP2	SS00153EG	28-JUN-94	17-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.063	PCI/G	0.013		V				0.006
SS107394	RM1	SS00126EG	14-JUN-94	10-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.065	PCI/G	0.019		V				0.01
SS108594	GM1	SS00138EG	20-JUN-94	19-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.067	PCI/G	0.021		V				0.01
SS104694	TM1	SS00093EG	25-MAY-94	18-AUG-94	DUP	TRG	PLUTONIUM-239/240	0.067	PCI/G	0.015		V				0.009
SS104994	TM4	SS00100EG	01-JUN-94	10-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.072	PCI/G	0.020		V				0.01
SS108094	MR2	SS00133EG	16-JUN-94	19-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.075	PCI/G	0.019		V				0.009
SS104694	TM1	SS00097EG	25-MAY-94	18-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.076	PCI/G	0.017		V				0.01
SS108794	GM3	SS00140EG	20-JUN-94	22-AUG-94	REAL	TRG	PLUTONIUM-239/240	0.35	PCI/G	0.043		V				0.009
SS108994	MW2	SS00145EG	22-JUN-94	11-AUG-94	RNS	TRG	STRONTIUM-89,90	-0.072	PCI/L	0.13	U	V				0.2
SS109694	PR2	SS00166EG	27-JUN-94	11-AUG-94	RNS	TRG	STRONTIUM-89,90	-0.068	PCI/L	0.14	U	V				0.2
SS107494	RM2	SS00127EG	14-JUN-94	04-AUG-94	REAL	REP	STRONTIUM-89,90	0.015	PCI/G	0.17	U	V				0.3
SS111194	JP2	SS00165EG	29-JUL-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.063	PCI/G	0.18	U	V				0.3

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	R4	CRDL
SS105194	TH3	SS00102EG	01-JUN-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.065	PCI/G	0.14	U	V				0.2
SS109294	JP1	SS00146EG	29-JUL-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.073	PCI/G	0.13	U	V				0.2
SS107594	BE3	SS00128EG	14-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.073	PCI/G	0.18	U	V				0.3
SS110894	CM3	SS00168EG	01-JUL-94	12-AUG-94	RNS	TRG	STRONTIUM-89,90	0.083	PCI/L	0.19	U	Y				0.3
SS104594	TH2	SS00096EG	24-MAY-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.094	PCI/G	0.14	U	V				0.2
SS110294	CR1	SS00156EG	29-JUN-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.096	PCI/G	0.13	U	V				0.2
SS108894	MW1	SS00141EG	22-JUN-94	11-AUG-94	REAL	TRG	STRONTIUM-89,90	0.13	PCI/G	0.13	J	V				0.1
SS109894	DP1	SS00152EG	28-JUN-94	11-AUG-94	REAL	TRG	STRONTIUM-89,90	0.14	PCI/G	0.16	U	V				0.3
SS105294	LH1	SS00104EG	01-JUN-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.14	PCI/G	0.13	U	V				0.2
SS109094	RR1	SS00143EG	22-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.14	PCI/G	0.18	U	V				0.3
SS107394	RM1	SS00126EG	14-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.15	PCI/G	0.19	U	V				0.3
SS104494	TH1	SS00095EG	24-MAY-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.16	PCI/G	0.17	U	V				0.3
SS107994	MR1	SS00132EG	15-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.18	PCI/G	0.17	U	V				0.3
SS110594	AF3	SS00159EG	30-JUN-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.18	PCI/G	0.13	U	V				0.2
SS109994	DP2	SS00153EG	28-JUN-94	11-AUG-94	REAL	TRG	STRONTIUM-89,90	0.18	PCI/G	0.095	J	V				0.1
SS110094	DP3	SS00154EG	28-JUN-94	11-AUG-94	REAL	TRG	STRONTIUM-89,90	0.18	PCI/G	0.12	J	V				0.1
SS109494	FW2	SS00148EG	23-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.19	PCI/G	0.15	U	V				0.3
SS111194	JP2	SS00169EG	29-JUL-94	12-AUG-94	DUP	TRG	STRONTIUM-89,90	0.19	PCI/G	0.16	U	V				0.2
SS107794	BE1	SS00130EG	15-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.19	PCI/G	0.18	U	V				0.3
SS107694	BE2	SS00129EG	15-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.19	PCI/G	0.19	U	V				0.3
SS108794	GM3	SS00140EG	20-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.19	PCI/G	0.13	U	V				0.2
SS109194	RR2	SS00144EG	22-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.2	PCI/G	0.15	J	V				0.2
SS104394	DR1	SS00094EG	16-MAY-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.2	PCI/G	0.16	J	V				0.2
SS107894	RM3	SS00131EG	14-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.21	PCI/G	0.19	U	V				0.3
SS109794	PR3	SS00151EG	27-JUN-94	11-AUG-94	REAL	TRG	STRONTIUM-89,90	0.21	PCI/G	0.15	J	V				0.2
SS108194	MR3	SS00134EG	16-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.22	PCI/G	0.095	J	V				0.09
SS109394	FW1	SS00147EG	23-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.22	PCI/G	0.16	U	V				0.3
SS109694	PR2	SS00150EG	27-JUN-94	11-AUG-94	REAL	TRG	STRONTIUM-89,90	0.22	PCI/G	0.17	U	V				0.3
SS110194	PP1	SS00155EG	29-JUN-94	12-AUG-94	REAL	REP	STRONTIUM-89,90	0.24	PCI/G	0.17	U	V				0.3
SS110294	CR1	SS00167EG	29-JUN-94	12-AUG-94	DUP	TRG	STRONTIUM-89,90	0.24	PCI/G	0.14	J	V				0.2
SS104294	DR3	SS00092EG	23-MAY-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.24	PCI/G	0.14	J	V				0.2
SS108194	MR3	SS00134EG	16-JUN-94	11-AUG-94	REAL	REP	STRONTIUM-89,90	0.25	PCI/G	0.10	J	V				0.1
SS107494	RM2	SS00127EG	14-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.26	PCI/G	0.19	U	V				0.3
SS110794	CM2	SS00161EG	01-JUL-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.26	PCI/G	0.15	J	V				0.2
SS105094	TM5	SS00101EG	01-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.27	PCI/G	0.21	U	V				0.3
SS110894	CM3	SS00162EG	01-JUL-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.27	PCI/G	0.13	J	V				0.2
SS108394	ES2	SS00136EG	16-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.27	PCI/G	0.11	J	V				0.1
SS108994	MW2	SS00142EG	22-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.28	PCI/G	0.16	U	V				0.3
SS110494	AF2	SS00158EG	30-JUN-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.29	PCI/G	0.13	J	V				0.2
SS109594	PR1	SS00149EG	27-JUN-94	11-AUG-94	REAL	TRG	STRONTIUM-89,90	0.3	PCI/G	0.15	J	V				0.2
SS111094	JP3	SS00164EG	29-JUL-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.32	PCI/G	0.15	J	V				0.2

FALLOUT RADIONUCLIDES: RAW DATA

LOCATION	SITE	SAMPLE#	SAMPDATE	ANALDATE	QC CODE	TYPE	ANALYTE	RESULT	UNIT	ERR	QUAL	VAL	R1	R2	D1	CRDL
SS104894	TM3	SS00099EG	25-MAY-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.33	PCI/G	0.15	J	V				0.2
SS110194	PP1	SS00155EG	29-JUN-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.33	PCI/G	0.13	J	V				0.1
SS110394	AF1	SS00157EG	30-JUN-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.36	PCI/G	0.14	J	V				0.2
SS110694	CM1	SS00160EG	01-JUL-94	12-AUG-94	REAL	TRG	STRONTIUM-89,90	0.36	PCI/G	0.16	J	V				0.2
SS104194	DR2	SS00091EG	23-MAY-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.37	PCI/G	0.16	J	V				0.2
SS108694	GM2	SS00139EG	20-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.38	PCI/G	0.15	J	V				0.2
SS104794	TM2	SS00098EG	25-MAY-94	04-AUG-94	REAL	TRG	STRONTIUM-89,90	0.39	PCI/G	0.22	J	V				0.3
SS107894	RM3	SS00131EG	14-JUN-94	04-AUG-94	REAL	REP	STRONTIUM-89,90	0.41	PCI/G	0.25	J	V				0.4
SS108094	MR2	SS00133EG	16-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.41	PCI/G	0.25	J	V				0.4
SS108594	GM1	SS00138EG	20-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.45	PCI/G	0.15	J	V				0.2
SS108494	ES3	SS00137EG	16-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.47	PCI/G	0.12	J	V				0.1
SS104994	TM4	SS00100EG	01-JUN-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.48	PCI/G	0.19	J	V				0.3
SS108094	MR2	SS00133EG	16-JUN-94	11-AUG-94	REAL	REP	STRONTIUM-89,90	0.48	PCI/G	0.12	J	V				0.1
SS108294	ES1	SS00135EG	16-JUN-94	10-AUG-94	REAL	TRG	STRONTIUM-89,90	0.59	PCI/G	0.13	J	V				0.1
SS104694	TM1	SS00097EG	25-MAY-94	03-AUG-94	REAL	TRG	STRONTIUM-89,90	0.61	PCI/G	0.22	J	V				0.3
SS104694	TM1	SS00093EG	25-MAY-94	04-AUG-94	DUP	TRG	STRONTIUM-89,90	0.67	PCI/G	0.20	J	V				0.3
SS109694	PR2	SS00166EG	27-JUN-94	11-AUG-94	RNS	TRG	TOTAL RADIOCESIUM	-0.014	PCI/L	0.063	U	V				0.2
SS108994	MW2	SS00145EG	22-JUN-94	11-AUG-94	RNS	TRG	TOTAL RADIOCESIUM	0.02	PCI/L	0.071	U	V				0.2
SS110894	CM3	SS00168EG	01-JUL-94	10-AUG-94	RNS	TRG	TOTAL RADIOCESIUM	0.71	PCI/L	0.13	J	Y				0.3

APPENDIX C - DATA QUALITY ASSESSMENT

This appendix is a supplement to, and was performed in conjunction with, the *Rocky Flats Plant Site-Wide Quality Assurance Project Plan for CERCLA Remedial Investigation/Feasibility Studies and RCRA Facility Investigations/Corrective Measures Studies Activities* (QAPjP)(EG&G, 1990). The analytical results were evaluated using the criteria specified in *Evaluation of ERM Data for Usability in Final Reports, 2-G32-ER-ADM-08.02* (EG&G, 1994b). This appendix is also organized according to Section 5.0 of the 2-G32-ER-ADM-08.02 document (EG&G, 1994b).

C.1 DATA VALIDATION

Validation activities consist of reviewing and verifying field and laboratory data and evaluating these verified data for data quality (i.e., comparison of reduced data to DQOs, where appropriate). The field and laboratory data validation and guidelines are described and referenced in Section 3.0 of the QAPjP. The process for validating the quality of the data is illustrated graphically in Figure 3-1 of the QAPjP, and is also included as part of the sample-collection, chain-of-custody, and analysis process illustrated in Figure 8-1 of the QAPjP. The criteria for determining the validity of ER data at RFETS are described in Section 3.7 of the QAPjP.

The acceptance and review criteria for the following validation standards are specified in the GRRASP. The process for evaluating whether the criteria have been met is described in the documents on the functional guidelines for validation (EG&G, 1990; EG&G, 1994b). The following three levels of data validity have been established for the ER activities at RFETS:

1. Valid data meet the following seven, objective standards (Validation Code = V):

    - Proper analytical methods followed
    - Sufficient number and type of QC samples analyzed
    - Acceptance criteria for QC samples achieved
    - Detection limits achieved
    - Compounds and analytes correctly identified
    - Equipment/instrument-calibration criteria achieved
    - Sample holding times met.

2. Acceptable data (with qualifications) meet most, but not all, objective standards. All primary validation criteria (i.e., calibration, method requirements, compound and analyte identification) are achieved within acceptable limits (Validation Code = A).

3. Rejected data do not meet objective standards or primary validation criteria (Validation Code = R).

C.2 DATA REPORTING

Depending on the outcome of the data-validation process or the status of data validation, each datum is coded according to the definitions in Table 7-2 of the QAPjP. The results of the data validation were reported in ER Department Data Assessment Summary reports. The usability of data (usability criteria are described in Section 3.7 of the QAPjP) was addressed by applying the following protocol:

Data are usable for all purposes if all of the following criteria are met:
- Data quality is classified as valid.
- All DQOs are achieved.
- All specific agreements and/or regulatory requirements are met.

Data are considered usable for some purposes if any of the following conditions occur:
- Data quality is classified as valid or acceptable with qualifications. (Rejected data may be usable for limited purposes such as screening.)
- Not all DQOs are achieved.
- All specific program requirements are not met.

Data may be unusable if:
- Data quality is classified as rejected.
- DQOs are not achieved.
- Specific program requirements are not met.

With the exception of thallium, all data were considered usable for Phase I of the BSCP.

C.3 PRECISION, ACCURACY, REPRESENTATIVENESS, COMPLETENESS, AND COMPARABILITY PARAMETERS

Data quality is typically measured in terms of precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters. Precision, accuracy, and completeness are quantitative measures of data quality, whereas representativeness and comparability are qualitative statements that express the degree to which sample data represent actual conditions and describe the confidence of the relationship of one data set to another. These parameters are defined in Appendix B of the QAPjP and are summarized as follows.

C.3.1 Precision

Precision is a measure of the reproducibility of analytical results. Precision is expressed quantitatively by the RPD between duplicate field samples. Precision is a laboratory quality assurance/quality control (QA/QC) parameter and was met by complying with protocol established for laboratories in GRRASP. Precision objectives (i.e., calculated RPD values) for the analytes listed in Table C-1 are as prescribed in GRRASP. To be acceptable, field duplicate soil samples, which are collected and analyzed to provide an indication of overall sampling and analytical precision, must agree within a 40-percent RPD for the target sample. The RPD is calculated as follows:

$$RPD = 100*(C1 - C2)/[(C1 + C2)/2]$$

where:

RPD	=	Relative percent difference
C1	=	Concentration of analyte in the sample
C2	=	Concentration of analyte in the duplicate

Only two analytes, americium-241 and radium-226, had RPD values greater than 40 percent. All other radionuclides and non-radionuclides had RPD values $\leq$ 40 percent. Tables C-2 and C-3 present the calculated RPDs and the summary of RPDs, respectively.

C.3.2 Accuracy

Accuracy is a measure of how closely an analytical result corresponds to the "true" concentration in a sample. Tests for accuracy measure the bias or source of error in a group of measurements; bias is an indication of the systematic error within an analytical technique. It is expressed quantitatively by the percent recovery (%R) obtained from spiked samples, defined as:

$$\%R = [(SSR - SR)/SA] * 100$$

where
SSR = spiked sample result
SR = sample result
SA = spike added

There were no results for spiked samples reported in the RFEDS data for the BSCP. Comparison with known standards can also be used to check for analytical or instrumental bias in analyses. Table C-4 presents the CRDLs and IDLs.

C.3.3 Representativeness

Representativeness is a qualitative measure of how well the data meet the project goal of representing the concentrations or activities of analytes in the target population. It expresses the degree to which sample data accurately and precisely represents the characteristics of a particular site or population, parameter variations at a sampling point, or an environmental condition.

Representativeness is also a qualitative parameter related to the proper design of the sampling and analysis program. For the BSCP study, selection of sample locations was designed to represent environmental conditions applicable to each analyte group. The required number of samples, according to the sampling plan, was compared to the actual number of samples collected. The results of these comparisons are presented in Table C-5; these results indicate that there were no sampling deviations for the BSCP study.

C.3.4 Completeness

Completeness is defined as the percentage of measurements that are judged to be valid. The target completeness for both field sampling and analytical data for the BSCP was 90 percent. The attainment of the completeness objective for Phase I of the BSCP was determined using the following calculation for all data types:

$$\text{Completeness} = DP_u = [(DP_t - DP_n)/DP_t] \text{ X } 100$$

where:

DP_u = Percentage of usable data points
DP_t = Total number of data points
DP_n = Nonusable data points

All data points were determined to be usable (i.e., completeness of 100 percent), except data points for thallium, which had a completeness of 70 percent.

C.3.5 Comparability

Comparability is a qualitative parameter that expresses the confidence with which two data sets may be compared. Comparability of BSCP data with data collected for OUs at RFETS was attained by utilizing the same soil-sampling method (the RF sampling method) and using similar analytical methods (except for antimony analyses) as those used by the OUs.

For the BSCP data, studies that have sampled soil to depths of 5 cm have comparable data, but comparability with studies that sampled to lesser or greater depths is less certain. Additionally, laboratory analyses for most historic plutonium studies, as well as for many regional studies, used the leaching method rather than the complete-dissolution method that has been used at RFETS since 1990. Use of the leaching method in some other studies introduces additional uncertainty into the comparison with data from the BSCP.

C.4 EQUIPMENT DECONTAMINATION

Non-dedicated sampling equipment (i.e., sampling equipment that is used at more than one location) was decontaminated between sampling locations in accordance with EMD 5-21000-OPS FO.3, General Equipment Decontamination (EG&G, 1995c). Equipment rinsate blanks, which were collected and analyzed to detect cross-contamination of samples from inadequate equipment decontamination, are considered acceptable (with no need for data qualification) if the concentration of analytes of interest is less than five times the required detection limit (i.e., the CRDL) for each analyte, as specified in Table C-4.

The effectiveness of equipment decontamination was tested by analyzing the final rinse solution for each analyte for 20 percent of the samples collected. No contaminants were detected in the rinse water. Results for the rinsate blanks did not indicate a contamination problem; therefore, field blanks were not analyzed.

C.5 LABORATORY CONTAMINATION IN SAMPLES

Laboratory QC techniques to ensure consistency and validity of analytical results (including detecting potential laboratory contamination of samples) consisted of using reagent blanks, internal standard reference materials, laboratory replicate analyses, and field duplicates. The laboratory analysis contractor followed the standard evaluation guidelines and QC procedures, including frequency of QC checks, that are applicable to the analytical method used as specified in Parts A and B of the GRRASP and Section 3.0 of the QAPjP. As noted above, field blanks were not analyzed, because field rinsate blanks indicated a lack of field-derived contaminants.

The following criteria were used to determine if the potential chemical of concern was a laboratory contaminant or field contaminant in the real sample:

- If a detected organic analyte is a common laboratory contaminant (methylene chloride, acetone, 2-butanone, or phthalate) and the real concentration is less than 10 times the blank concentration, the potential contaminant is considered a laboratory contaminant (i.e., not detected) in the real sample and the qualifier is changed from "B" to "U".

- If a detected organic analyte is a common laboratory contaminant and the real concentration is greater than or equal to 10 times the blank concentration, the organic analyte in the real sample is considered a true detect and the "B" qualifier is dropped.

- If a detected organic analyte is not a common laboratory contaminant and the real concentration is less than 5 times the blank concentration, the potential contaminant is considered a laboratory contaminant (i.e., not detected) in the real sample and the qualifier is changed from a "B" to a "U".

- If a detected organic analyte is a not common laboratory contaminant and the real concentration is greater than or equal to 5 times the blank concentration, the analyte in the real sample is considered a true detect and the "B" qualifier is dropped.

- If the source of detected contamination from real or QC samples is inconclusive, compare lot numbers of sampling containers used for real samples with analytical results for the same lots of sample containers produced by the laboratory. This process should allow one to determine if the sample containers are the source of contamination.

Table C-1

MATRIX TYPE AND ANALYTICAL SUITES

Matrix Type	Analytical Suites
Surface soil	Semi-Volatile Organic Compounds Pesticides and PCBs Metals Radionuclides Chemical Parameters/Physical Properties

Table C-2

CALCULATED RPD VALUES FOR FIELD DUPLICATE SAMPLES

QC Sample ID	Media	Detected Analyte	Associated Real Sample ID	QC Sample Result	Real Sample Result	Units	RPD Value
Metals							
SS00103EG	Soil	Aluminum	SS00125EG	16100	12700	mg/kg	23.6%
SS00103EG	Soil	Arsenic	SS00125EG	6.8	6.1	mg/kg	10.9%
SS00103EG	Soil	Barium	SS00125EG	106	97.2	mg/kg	8.7%
SS00103EG	Soil	Beryllium	SS00125EG	0.87	0.81	mg/kg	7.1%
SS00103EG	Soil	Calcium	SS00125EG	2980	2810	mg/kg	5.9%
SS00103EG	Soil	Chromium	SS00125EG	16.6	13.3	mg/kg	22.1%
SS00103EG	Soil	Cobalt	SS00125EG	10.2	8.8	mg/kg	14.7%
SS00103EG	Soil	Copper	SS00125EG	15.7	16	mg/kg	1.9%
SS00103EG	Soil	Iron	SS00125EG	20900	15300	mg/kg	30.9%
SS00103EG	Soil	Lead	SS00125EG	32.3	30.1	mg/kg	7.1%
SS00103EG	Soil	Lithium	SS00125EG	10.7	8.6	mg/kg	21.8%
SS00103EG	Soil	Magnesium	SS00125EG	2480	2140	mg/kg	14.7%
SS00103EG	Soil	Manganese	SS00125EG	298	271	mg/kg	9.5%
SS00103EG	Soil	Nickel	SS00125EG	14	12.8	mg/kg	9.0%
SS00103EG	Soil	Potassium	SS00125EG	2650	2150	mg/kg	20.8%
SS00103EG	Soil	Silicon	SS00125EG	1480	1360	mg/kg	8.5%
SS00103EG	Soil	Sodium	SS00125EG	62.6	79.7	mg/kg	24.0%
SS00103EG	Soil	Strontium	SS00125EG	35.4	32.3	mg/kg	9.2%
SS00103EG	Soil	Vanadium	SS00125EG	41.7	35.6	mg/kg	15.8%
SS00103EG	Soil	Zinc	SS00125EG	57.6	59.9	mg/kg	3.9%
Radionuclides							
SS00103EG	Soil	Cesium-137	SS00125EG	0.89	0.77	pCi/g	14.5%
SS00103EG	Soil	Radium-226	SS00125EG	0.52	0.87	pCi/g	50.4%
SS00103EG	Soil	Radium-228	SS00125EG	0.98	1.3	pCi/g	28.1%
SS00103EG	Soil	Uranium-233/234	SS00125EG	0.81	0.81	pCi/g	0.0%
SS00103EG	Soil	Uranium-235	SS00125EG	0.035	0.033	pCi/g	5.9%
SS00103EG	Soil	Uranium-238	SS00125EG	0.84	0.83	pCi/g	1.2%
SS00167EG	Soil	Cesium-137	SS00156EG	0.34	0.51	pCi/g	40.0%

Table C-2. (continued).

QC Sample ID	Media	Detected Analyte	Associated Real Sample ID	QC Sample Result	Real Sample Result	Units	RPD Value
Radionuclides (continued).							
SS00167EG	Soil	Plutonium-239/240	SS00156EG	0.016	0.018	pCi/g	11.8%
SS00169EG	Soil	Cesium-137	SS00165EG	0.72	0.95	pCi/g	27.5%
SS00169EG	Soil	Plutonium-239/240	SS00165EG	0.036	0.03	pCi/g	18.2%
SS00093EG	Soil	Americium-241	SS00097EG	0.031	0.014	pCi/g	75.6%
SS00093EG	Soil	Cesium-137	SS00097EG	1.8	1.6	pCi/g	11.8%
SS00093EG	Soil	Plutonium-239/240	SS00097EG	0.067	0.076	pCi/g	12.6%
SS00093EG	Soil	Strontium-89/90	SS00097EG	0.67	0.61	pCi/g	9.4%
Chemical Parameters/Physical Properties							
SS00103EG	Soil	Nitrate/Nitrite	SS00125EG	8	7	mg/kg	13.3%
SS00103EG	Soil	Oil and Grease	SS00125EG	81	88	mg/kg	8.3%
SS00103EG	Soil	Total Organic Carbon	SS00125EG	16800	16700	mg/kg	0.6%
SS00093EG	Soil	Total Organic Carbon	SS00097EG	4.3%	4.4%	%	2.3%
SS00103EG	Soil	pH	SS00125EG	5.9	6.1	pH units	3.3%
SS00103EG	Soil	Specific Conductivity	SS00125EG	0.14	0.13	mmhos/cm	7.4%

Table C-3

SUMMARY OF RPDs

Analyte	Media	Required RPD Value	Total Duplicates Collected	Number of Duplicates within the RPD	Overall Precision Compliance
Metals					
Aluminum	Soil	≤ 40%	1	1	100%
Arsenic	Soil	≤ 40%	1	1	100%
Barium	Soil	≤ 40%	1	1	100%
Beryllium	Soil	≤ 40%	1	1	100%
Calcium	Soil	≤ 40%	1	1	100%
Chromium	Soil	≤ 40%	1	1	100%
Cobalt	Soil	≤ 40%	1	1	100%
Copper	Soil	≤ 40%	1	1	100%
Iron	Soil	≤ 40%	1	1	100%
Lead	Soil	≤ 40%	1	1	100%
Lithium	Soil	≤ 40%	1	1	100%
Magnesium	Soil	≤ 40%	1	1	100%
Manganese	Soil	≤ 40%	1	1	100%
Nickel	Soil	≤ 40%	1	1	100%
Potassium	Soil	≤ 40%	1	1	100%
Silicon	Soil	≤ 40%	1	1	100%
Sodium	Soil	≤ 40%	1	1	100%
Strontium	Soil	≤ 40%	1	1	100%
Vanadium	Soil	≤ 40%	1	1	100%
Zinc	Soil	≤ 40%	1	1	100%
Radionuclides					
Americium-241	Soil	≤ 40%	1	0	0%
Cesium-137	Soil	≤ 40%	4	4	100%
Plutonium-239/240	Soil	≤ 40%	3	3	100%
Radium-226	Soil	≤ 40%	1	0	0%
Radium-228	Soil	≤ 40%	1	1	100%
Strontium-89/90	Soil	≤ 40%	1	1	100%
Uranium-233/234	Soil	≤ 40%	1	1	100%
Uranium-235	Soil	≤ 40%	1	1	100%

Table C-3. (continued).

Analyte	Media	Required RPD Value	Total Duplicates Collected	Number of Duplicates within the RPD	Overall Precision Compliance
Uranium-238	Soil	≤ 40%	1	1	100%
Chemical Parameters/Physical Properties					
Nitrate/Nitrite	Soil	≤ 40%	1	1	100%
Oil and Grease	Soil	≤ 40%	1	1	100%
Total Organic Carbon	Soil	≤ 40%	2	2	100%
pH	Soil	≤ 40%	1	1	100%
Specific Conductivity	Soil	≤ 40%	1	1	100%

Table C-4

ANALYTICAL METHODS AND DETECTION LIMITS FOR BSCP SOIL AND SOIL PROFILE SAMPLES

Analyte	Method	Required Detection Limits (from BSCP)	Actual IDLs	Actual CRDLs
Target Analyte List-Metals (all units in mg/kg)				
Aluminum	Table 42[a]	40	—	40
Antimony	Table 42[a]	0.4	0.38-2.0	12
Arsenic (GFAA)	Table 42[a]	2.0	—	2.0
Barium	Table 42[a]	40	—	40
Beryllium	Table 42[a]	1.0	—	1.0
Cadmium	Table 42[a]	1.0	0.59-0.67	1.0
Calcium	Table 42[a]	2000	—	1000
Cesium	Table 43[a]	200	12.1-63	200
Chromium	Table 42[a]	2.0	—	2.0
Cobalt	Table 42[a]	10	—	10
Copper	Table 42[a]	5.0	—	5.0
Iron	Table 42[a]	20	—	20
Lead (GFAA)	Table 42[a]	1.0	—	0.6
Lithium	Table 43[a]	20	—	20
Magnesium	Table 42[a]	2000	—	1000
Manganese	Table 42[a]	3.0	—	3.0
Mercury (CVAA)	Table 42[a]	0.2	0.08-0.2	0.1
Molybdenum	Table 43[a]	40	0.58-1.8	40
Nickel	Table 42[a]	8.0	—	8.0
Potassium	Table 42[a]	2000	—	1000
Selenium (GFAA)	Table 42[a]	1.0	0.58-1.0	1.0
Silver	Table 42[a]	2.0	—	2.0
Sodium	Table 42[a]	2000	—	1000
Strontium	Table 43[a]	40	—	40
Thallium (GFAA)	Table 42[a]	2.0	0.77-0.89	2.0
Tin	Table 43[a]	40	2.7-10	40
Vanadium	Table 42[a]	10	—	10
Zinc	Table 42[a]	4.0	—	4.0
Target Compound List-Semivolatiles (all units in μg/kg)				
1,2,4-Trichlorobenzene	Table 13[b]	330	670-760	330
1,2-Dichlorobenzene	Table 13[b]	330	670-760	330
1,3-Dichlorobenzene	Table 13[b]	330	670-760	330
1,4-Dichlorobenzene	Table 13[b]	330	670-760	330
2,4,5-Trichlorophenol	Table 13[b]	1600	3300-3800	1600
2,4,6-Trichlorophenol	Table 13[b]	330	670-760	330
2,4-Dichlorophenol	Table 13[b]	330	670-760	330
2,4-Dimethylphenol	Table 13[b]	330	670-760	330
2,4-Dinitrophenol	Table 13[b]	1600	3300-3800	1600
2,4-Dinitrotoluene	Table 13[b]	330	670-760	330

Table C-4. (continued).

Analyte	Method	Required Detection Limits (from BSCP)	Actual IDLs	Actual CRDLs
2,6-Dinitrotoluene	Table 13[b]	330	670-760	330
2-Chloronaphthalene	Table 13[b]	330	670-760	330
2-Chlorophenol	Table 13[b]	330	670-760	330
2-Methylnapthalene	Table 13[b]	330	670-760	330
2-Methylphenol	Table 13[b]	330	670-760	330
2-Nitroanaline	Table 13[b]	1600	3300-3800	1600
2-Nitrophenol	Table 13[b]	330	670-760	330
3,3'-Dichlorobenzidine	Table 13[b]	660	1300-1500	660
3-Nitroanaline	Table 13[b]	1600	3300-3800	1600
4,6-Dinitro-2-methylphenol	Table 13[b]	1600	3300-3800	1600
4-Bromophenyl phenyl ether	Table 13[b]	330	670-760	330
4-Chloro-3-methylphenol	Table 13[b]	330	670-760	330
4-Chloroanaline	Table 13[b]	330	670-760	330
4-Chlorophenol phenyl ether	Table 13[b]	330	670-760	330
4-Methylphenol	Table 13[b]	330	670-760	330
4-Nitroanaline	Table 13[b]	1600	3300-3800	1600
4-Nitrophenol	Table 13[b]	1600	3300-3800	1600
Acenaphthene	Table 13[b]	330	670-760	330
Acenaphthylene	Table 13[b]	330	670-760	330
Anthracene	Table 13[b]	330	670-760	330
Benzo(a)anthracene	Table 13[b]	330	670-760	330
Benzo(a)pyrene	Table 13[b]	330	670-760	330
Benzo(b)fluoranthene	Table 13[b]	330	670-760	330
Benzo(g,h,i)perylene	Table 13[b]	330	670-760	330
Benzo(k)fluoranthene	Table 13[b]	330	670-760	330
Benzoic acid	Table 13[b]	1600	3300-3800	1600
Benzyl alcohol	Table 13[b]	330	670-760	330
bis(2-chloroethoxy)methane	Table 13[b]	330	670-760	330
bis(2-chloroethyl)ether	Table 13[b]	330	670-760	330
bis(2-chloroisopropyl)ether	Table 13[b]	330	670-760	330
bis(2-ethylhexyl)phthalate	Table 13[b]	330	670-760	330
Butyl benzylphthalate	Table 13[b]	330	670-760	330
Chrysene	Table 13[b]	330	670-760	330
Di-n-butylphthalate	Table 13[b]	330	670-760	330
Di-n-octyl phthalate	Table 13[b]	330	670-760	330
Dibenz(a,h)anthracene	Table 13[b]	330	670-760	330
Dibenzofuran	Table 13[b]	330	670-760	330
Diethylphthalate	Table 13[b]	330	670-760	330
Dimethylphthalate	Table 13[b]	330	670-760	330
Fluoranthene	Table 13[b]	330	670-760	330
Fluorene	Table 13[b]	330	670-760	330
Hexachlorobenzene	Table 13[b]	330	670-760	330

Table C-4. (continued).

Analyte	Method	Required Detection Limits (from BSCP)	Actual IDLs	Actual CRDLs
Hexachlorobutadiene	Table 13[b]	330	670-760	330
Hexachlorocyclopentadiene	Table 13[b]	330	670-760	330
Hexachloroethane	Table 13[b]	330	670-760	330
Indeno(1,2,3-cd)pyrene	Table 13[b]	330	670-760	330
Isophorone	Table 13[b]	330	670-760	330
n-Nitroso-diphenylamine	Table 13[b]	330	670-760	330
n-Nitroso-dipropylamine	Table 13[b]	330	670-760	330
Naphthalene	Table 13[b]	330	670-760	330
Nitrobenzene	Table 13[b]	330	670-760	330
Pentachlorophenol	Table 13[b]	1600	3300-3800	1600
Phenanthrene	Table 13[b]	330	670-760	330
Phenol	Table 13[b]	330	670-760	330
Pyrene	Table 13[b]	330	670-760	330
Target Compound List - Pesticides/PCBs (all units in $\mu g/kg$)				
4,4'-DDD	Table 23[b]	16	32-37	—
4,4'-DDE	Table 23[b]	16	32-37	—
4,4'-DDT	Table 23[b]	16	32-37	—
Aldrin	Table 23[b]	8.0	16-18	—
AROCLOR-1016	Table 23[b]	80	160-180	—
AROCLOR-1221	Table 23[b]	80	160-180	—
AROCLOR-1232	Table 23[b]	80	160-180	—
AROCLOR-1242	Table 23[b]	80	160-180	—
AROCLOR-1248	Table 23[b]	80	160-180	—
AROCLOR-1254	Table 23[b]	160	320-370	—
AROCLOR-1260	Table 23[b]	160	320-370	—
alpha-BHC	Table 23[b]	8.0	16-18	—
beta-BHC	Table 23[b]	8.0	16-18	—
delta-BHC	Table 23[b]	8.0	16-18	—
gamma-BHC (Lindane)	Table 23[b]	8.0	16-18	—
alpha-Chlordane	Table 23[b]	80	160-180	—
gamma-Chlordane	Table 23[b]	80	160-180	—
Dieldrin	Table 23[b]	16	32-37	—
Endosulfan I	Table 23[b]	8.0	16-18	—
Endosulfan II	Table 23[b]	16	32-37	—
Endosulfan Sulfate	Table 23[b]	16	32-37	—
Endrin	Table 23[b]	16	32-37	—
Heptachlor	Table 23[b]	8.0	16-18	—
Heptachlor epoxide	Table 23[b]	8.0	16-18	—
Methyloxychlor	Table 23[b]	80	160-180	—
Toxephene	Table 23[b]	160	320-370	—
Other Chemical Parameters/Physical Properties[3] (units specified)				
Ammonium	EPA 350 Series[d]	0.05 ppm	1.0	1.0
Carbonate	EPA 310.1[d]	10 ppm	10-11	10

Table C-4. (continued).

Analyte	Method	Required Detection Limits (from BSCP)	Actual IDLs	Actual CRDLs
Nitrate/Nitrite as N	EPA 353.1 or 353.2[d]	0.1 ppm	—	2.0
Oil & Grease	EPA 412.1[d] or 413.2	5 ppm	—	17
Soil pH	EPA 9045[c]	0.1 pH units	—	0.1
Specific Conductance	EPA 120.1[d]	1 μs	—	.002
Total Organic Carbon	EPA 415.1[d] or ASTM D4129-82	1 ppm	—	.05-220
Fallout and Naturally Occurring Radionuclides[1] (all units in pCi/g)				
Americium-241	e,f,g,h,i,j,k,l	0.02	.001-.013	.004-.02
Cesium-137	e,f,g,h,i,l	0.1	—	.07-.31
Plutonium-239/240	e,f,g,h,i,j,k,l	0.02	—	.002-.01
Radium-226	e,f,g,h,i,l	0.5	0.1	0.1-0.35
Radium-228	e,f,g,h,i,l	0.5	0.2	0.2-0.75
Strontium-89/90	e,f,g,h,i,l	1	.015-0.28	.09-0.4
Uranium-233/234	e,f,g,h,i,l	0.3	—	.007-.02
Uranium-235	e,f,g,h,i,l	0.15	—	.003-.009
Uranium-238	e,f,g,h,i,l	0.3	—	.006-.01

IDLs were only available for non-detected results.

1 Radiochemistry is performance based per GRRASP. The procedures used by the laboratory must be derived from one (or more) of the referenced methods.
2 Methods modified to accommodate soil matrix; detection limits may vary.
3 Physical properties testing will be conducted by Iowa State University and will be consistent with previous investigations by Litaor (1993b).

a Per GRRASP: U.S. EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration, 7/88 (or latest revision).
b Per GRRASP: U.S. EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration, 2/88 (or latest revision).
c Methods are from "Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods," (SW-846, 3rd Ed.) U.S. Environmental Protection Agency.
d Methods for Chemical Analysis of Water and Wastes, EPA- 600/4-79-02, March 1983.
e U.S. Environmental Protection Agency, 1979, Radiochemical Analytical Procedures for Analysis of Environmental Samples, Report No. EMSL-LY-0539-1, Las Vegas, NV, U.S. Environmental Protection Agency.
f U.S. Environmental Protection Agency, 1976. Interim Radiochemical Methodology for Drinking Water, Report No. EPA-600/4-75-008. Cincinnati U.S. Environmental Protection Agency.
g Harley, J.H., ed., 1975, ASL Procedures Manual, HASL-300; Washington, D.C., U.S. Energy Research and Development Administration
h "Prescribed Procedures for Measurement of Radioactiveity in Drinking Water," EPA-600/4-80-032, August 1980, Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.
i "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments," U.S.G.S. Book 5, Chapter A5, 1977.
j "Acid Dissolution Method for the Analysis of Plutonium in Soil," EPA-600/7-79/081, March 1979, U.S. EPA Environmental Monitoring and Support Laboratory, Las Vegas, Nevada, 1979.
k "Procedures for the Isolation of Alpha Spectrometrically Pure Plutonium, Uranium, and Americium," by E.H. Essington and B.J. Drennon, Los Alamos National Laboratory, a private communication.
l U.S. EPA, 1987. "Eastern Environmental Radiation Facility Radiochemistry Procedures Manual," EPA-520/5-84-006.

Table C-5

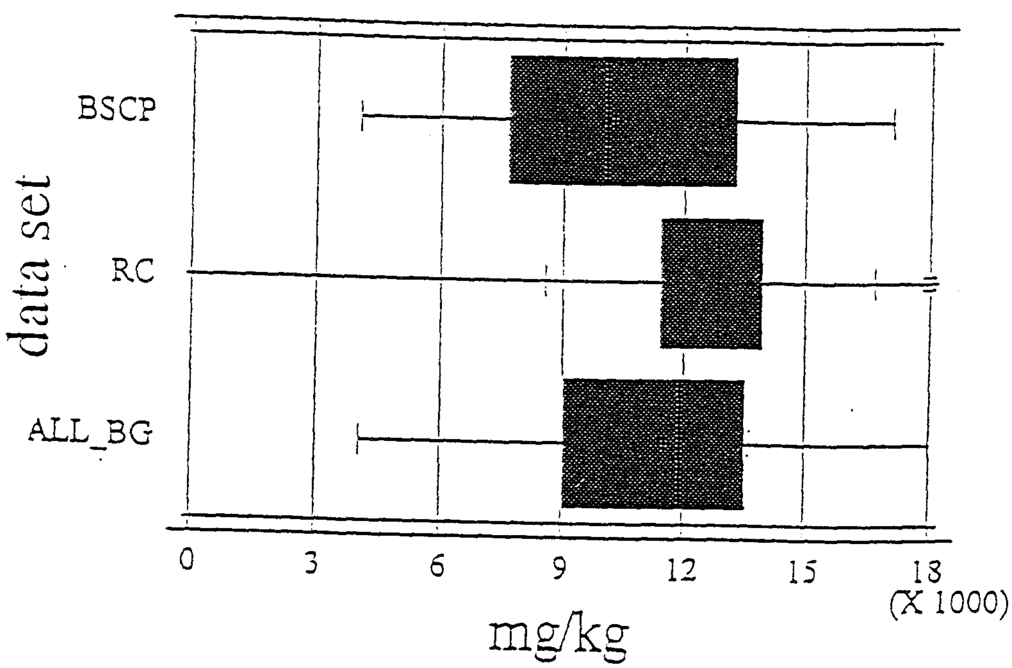
SAMPLE COMPARISON (REQUIRED-VS-ACTUAL)

Parameter	Required Number of Samples per Sampling-Plan Specifications	Actual Number of Samples	Deviation
Semivolatiles	20	20	0
Pesticides and PCBs	20	20	0
Metals (inorganics)	20	20	0
^{226}Ra, ^{228}Ra, $^{233/234}U$, ^{235}U	20	20	0
Fallout Radionuclides	20	20	0
Chemical Parameters/Physical Properties	20	20	0

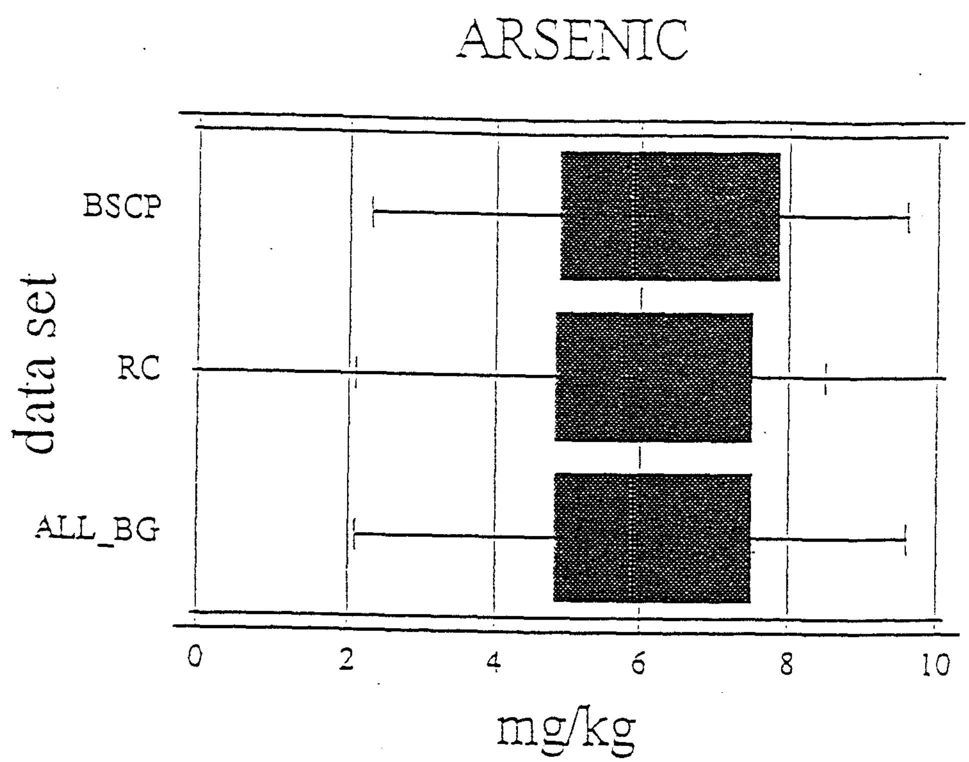
APPENDIX D BOX-AND-WHISKER PLOTS

Appendix D contains box-and-whisker plots comparing analyte concentrations. Plots for BSCP data, Rock Creek (RC) data, and the combined BSCP and Rock Creek data set (ALL_BG) are presented for comparison for analytes that had non-detect rates less than 80% in the BSCP data set and in the Rock Creek data set. Analytes such as antimony, cesium, mercury, molybdenum, silver, thallium, and tin had non-detect rates greater than 80% in either the BSCP or Rock Creek data sets; plots of these analytes are not included in this appendix. The non-detect rates are noted at the bottom of each box-and-whisker plot.

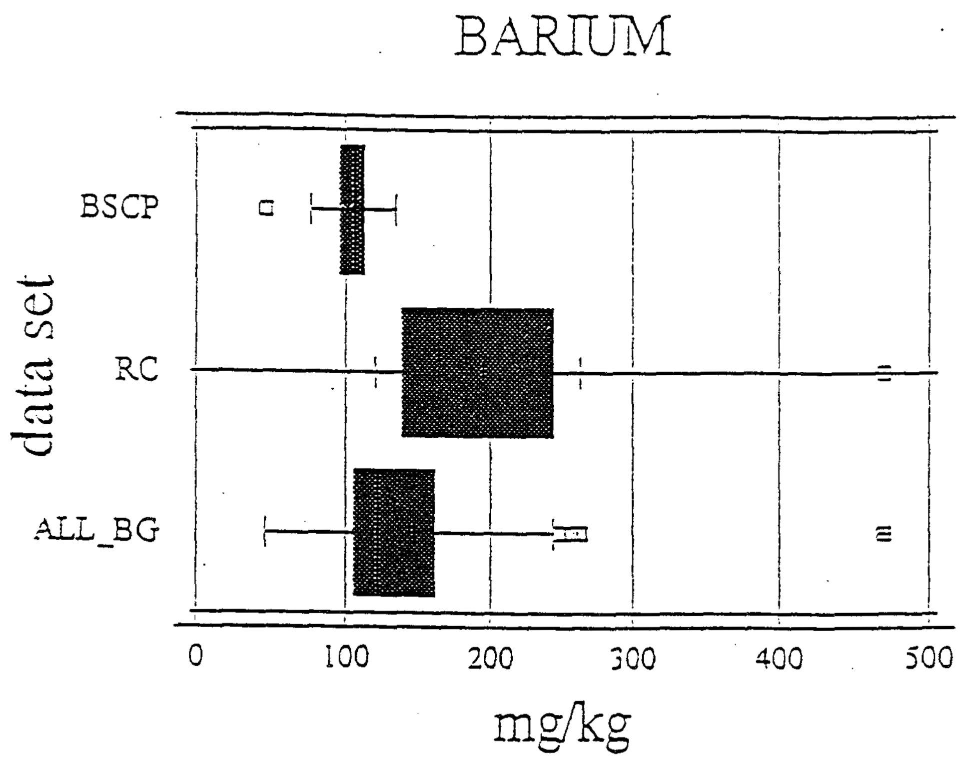
ALUMINUM



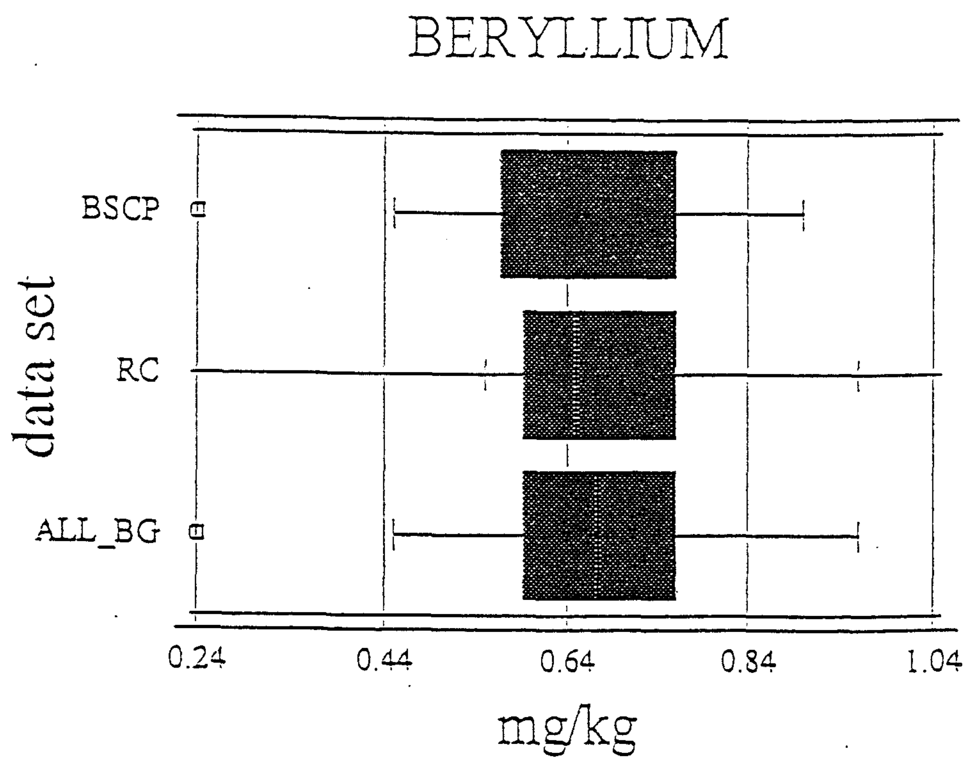
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



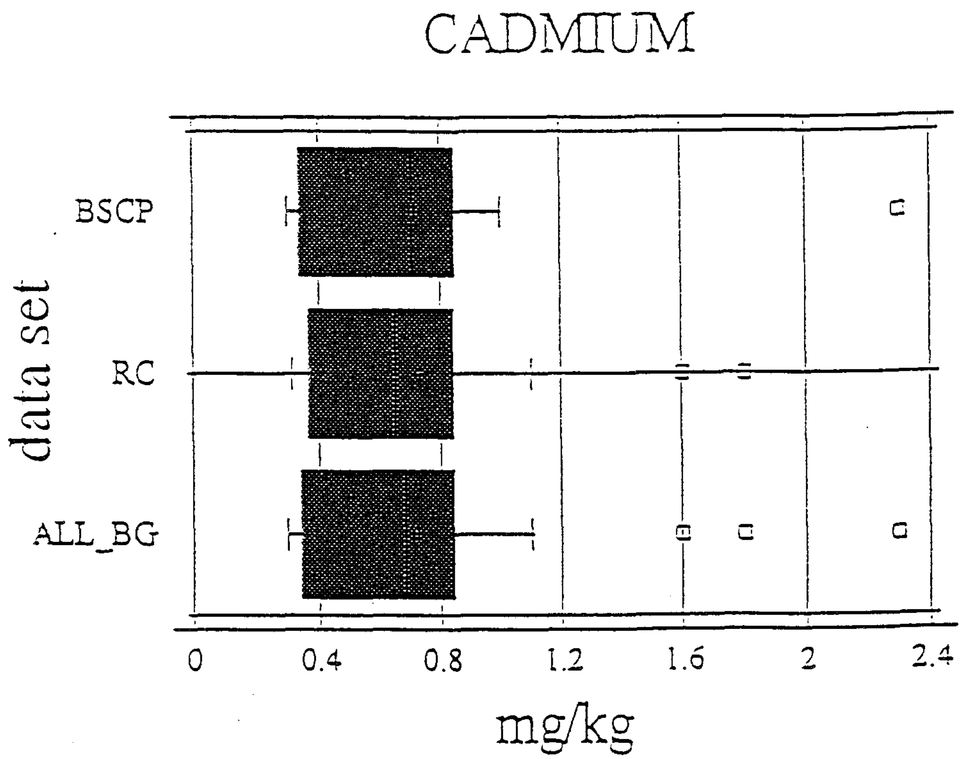
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



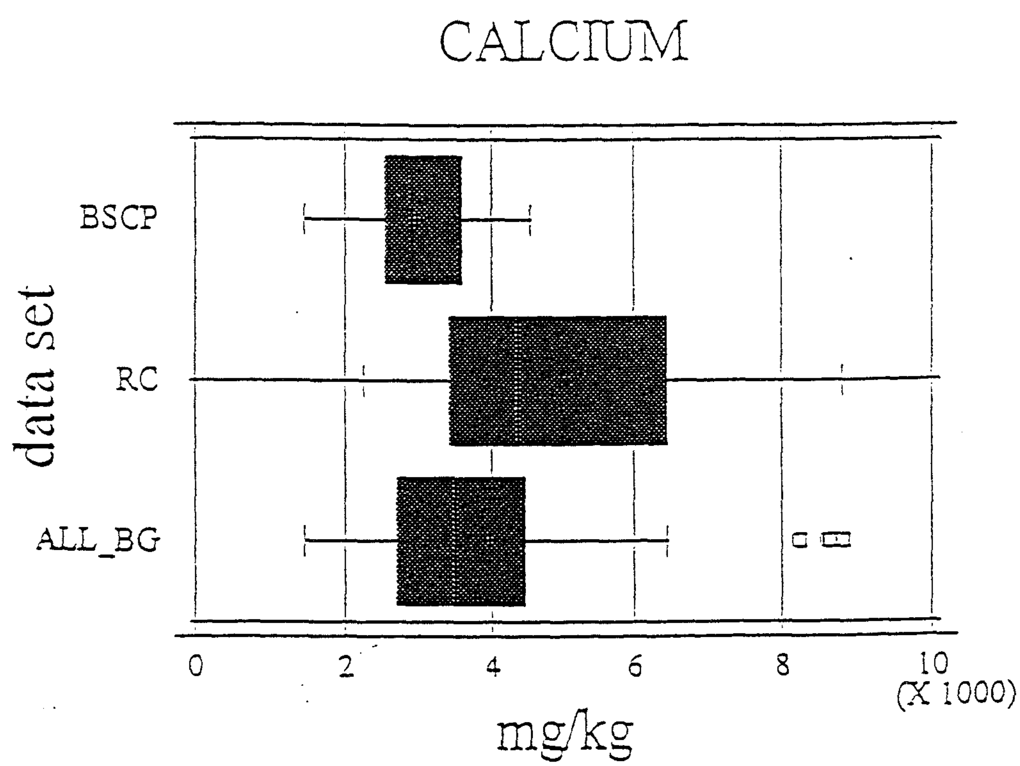
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



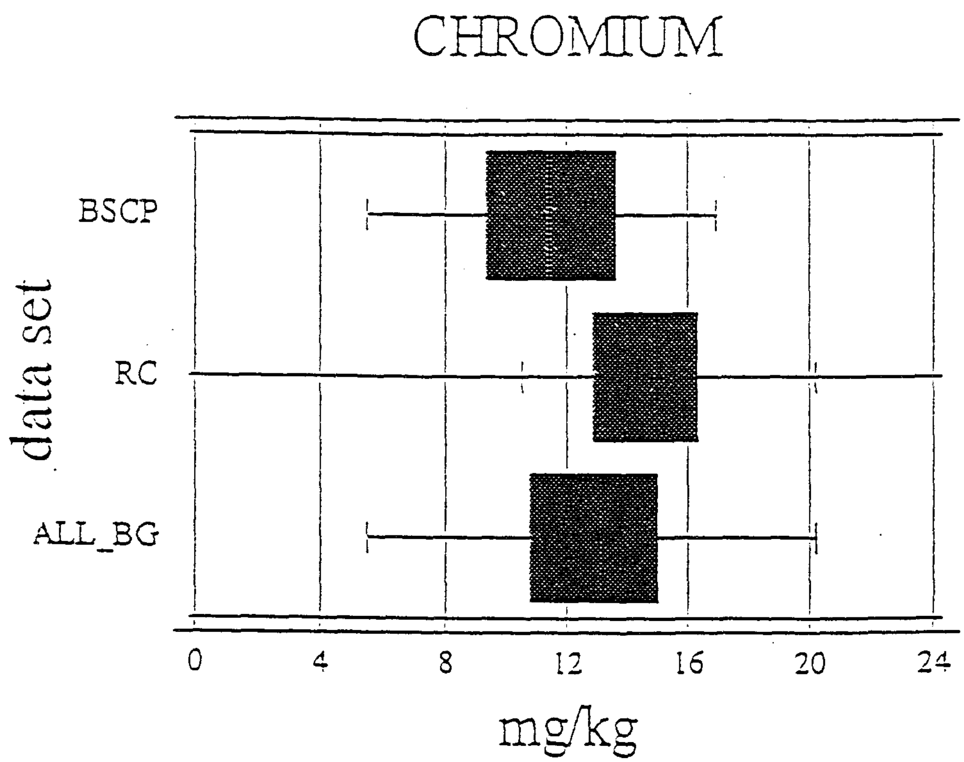
Non-detects: BSCP = 0%, RC = 43%, All_BG = 21%



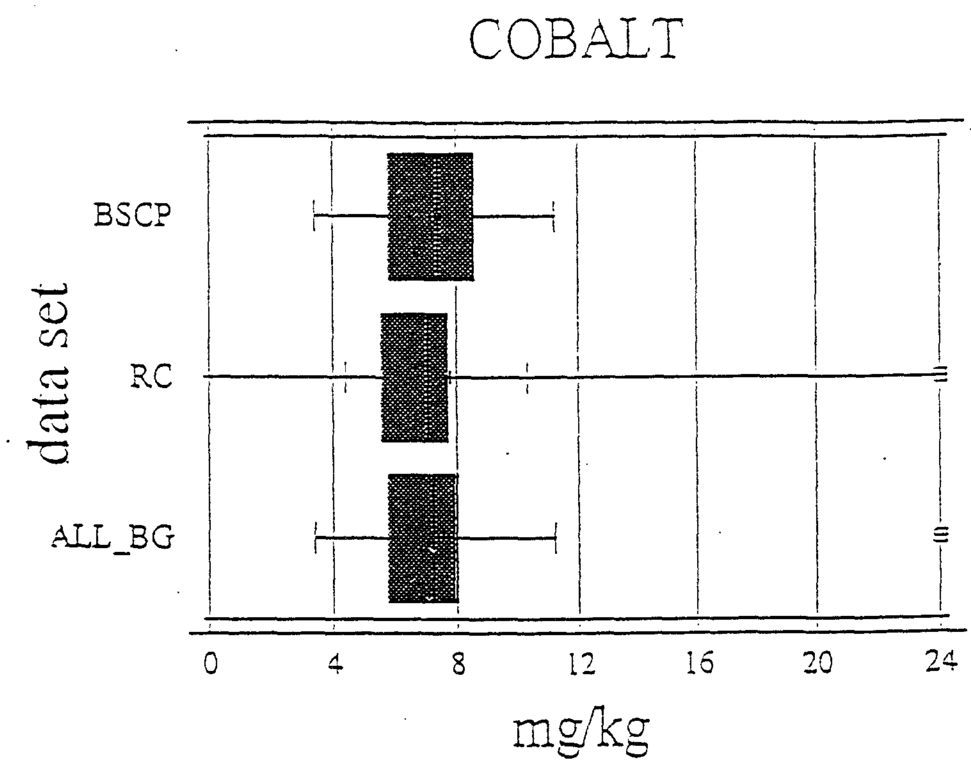
Non-detects: BSCP = 39%, RC = 71%, All_BG = 55%



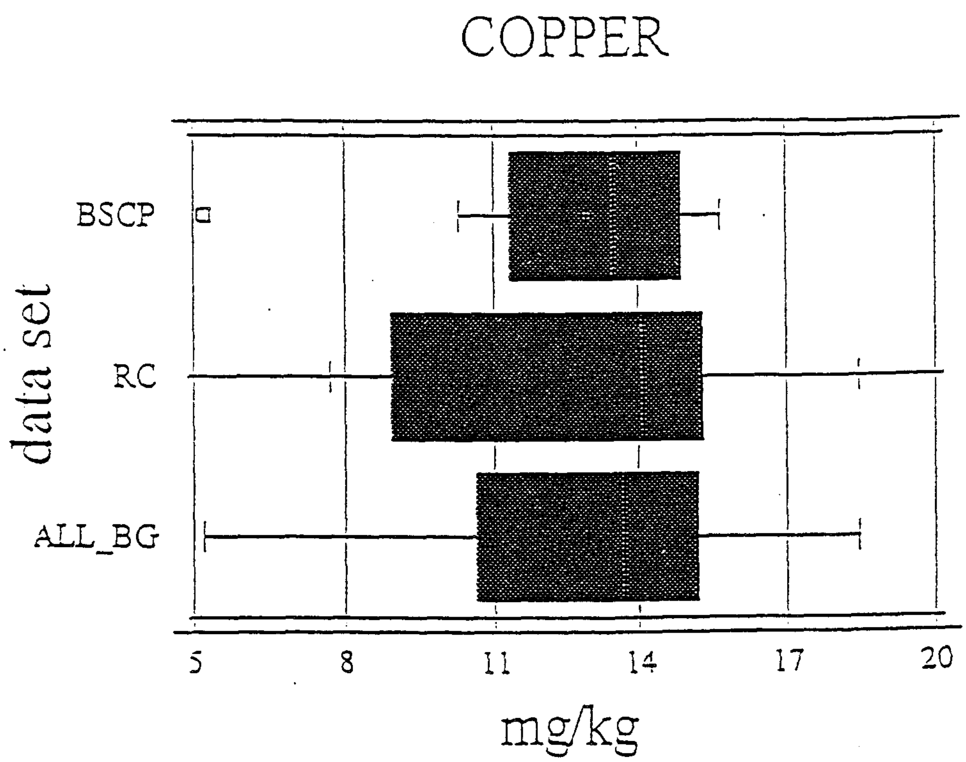
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



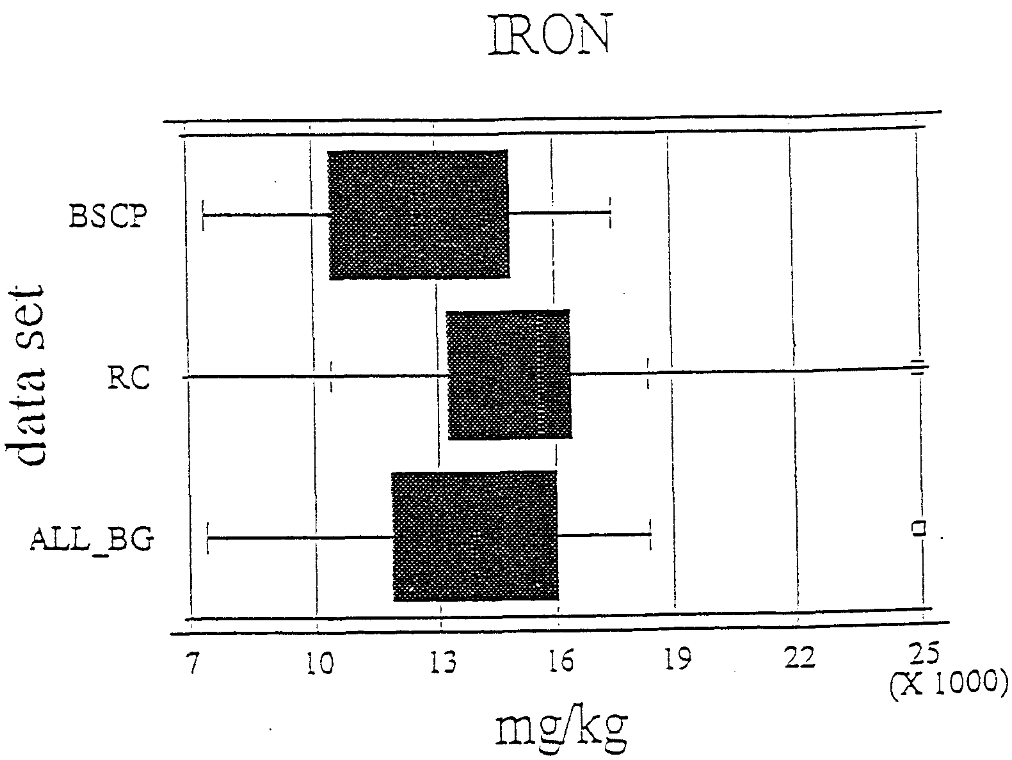
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



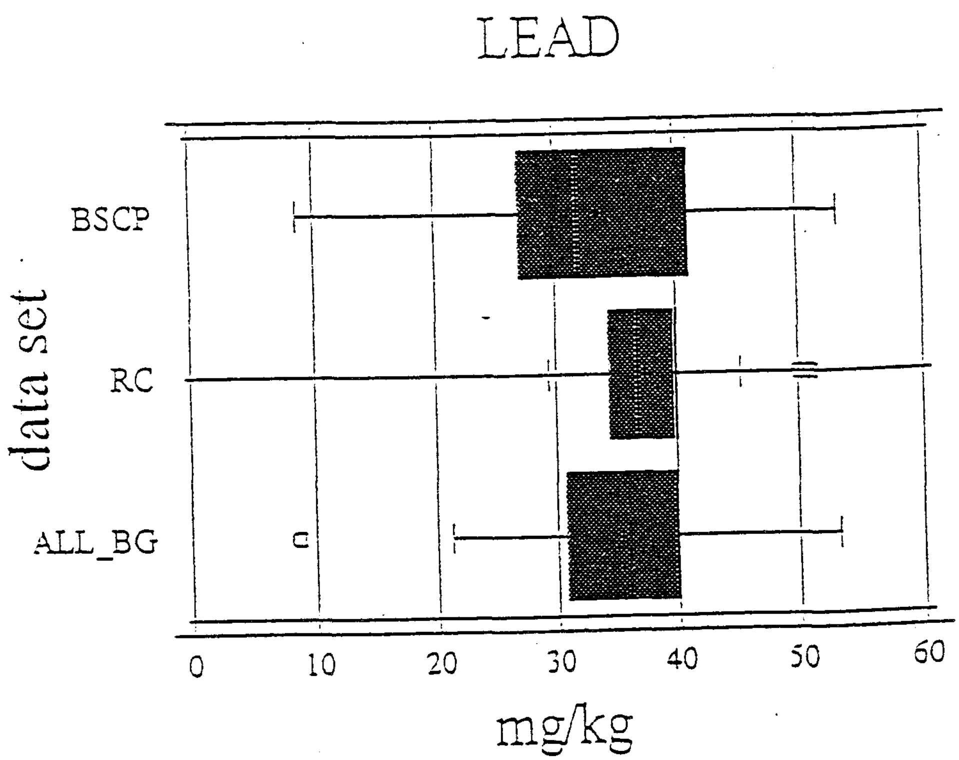
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

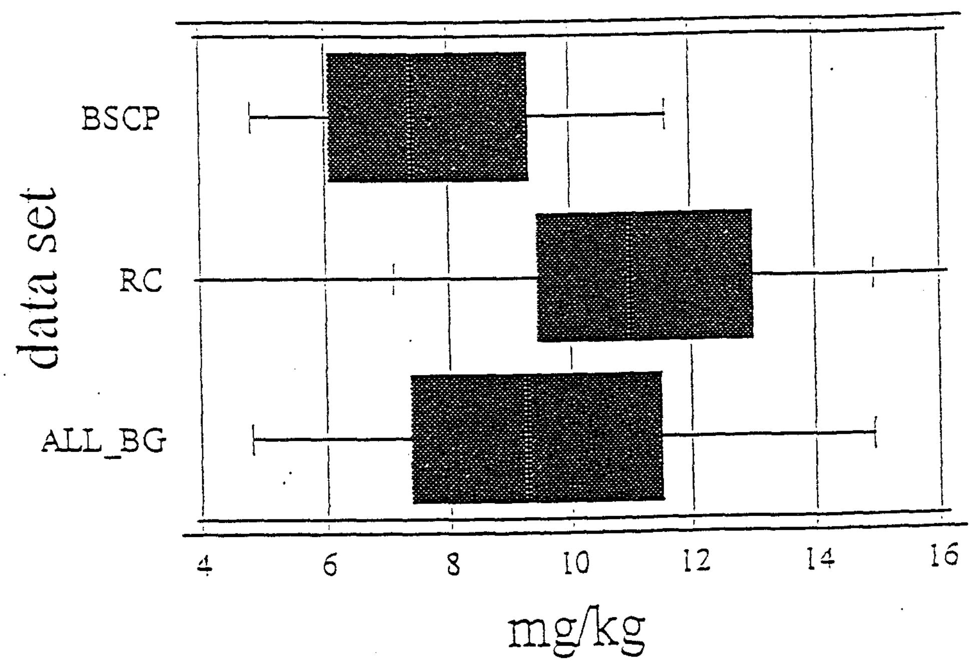


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

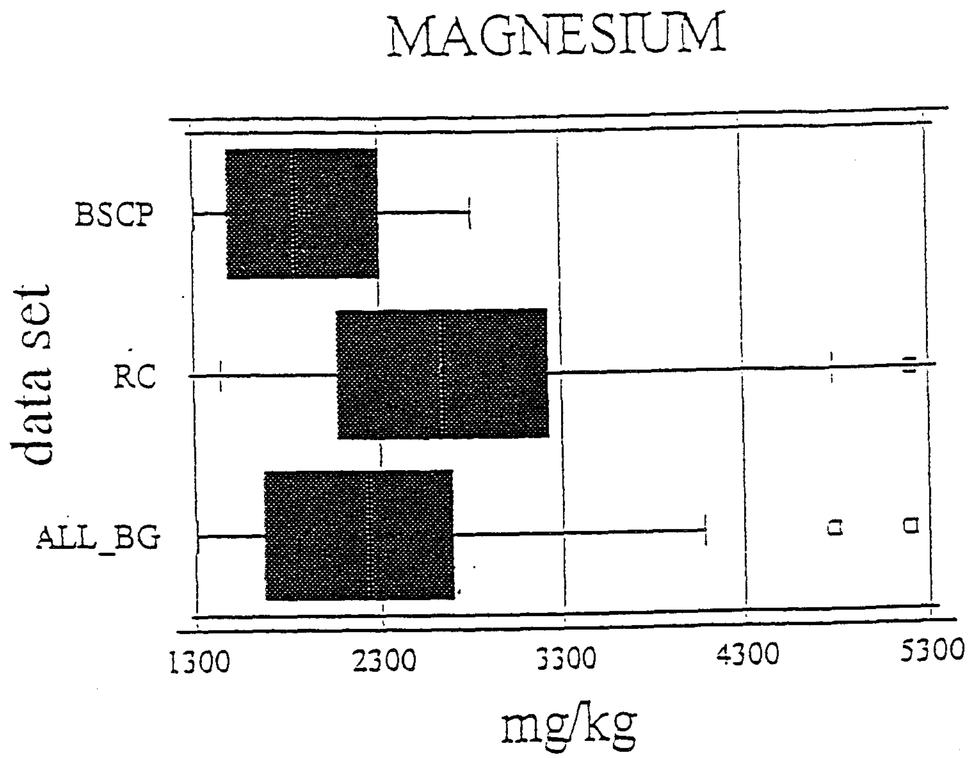


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

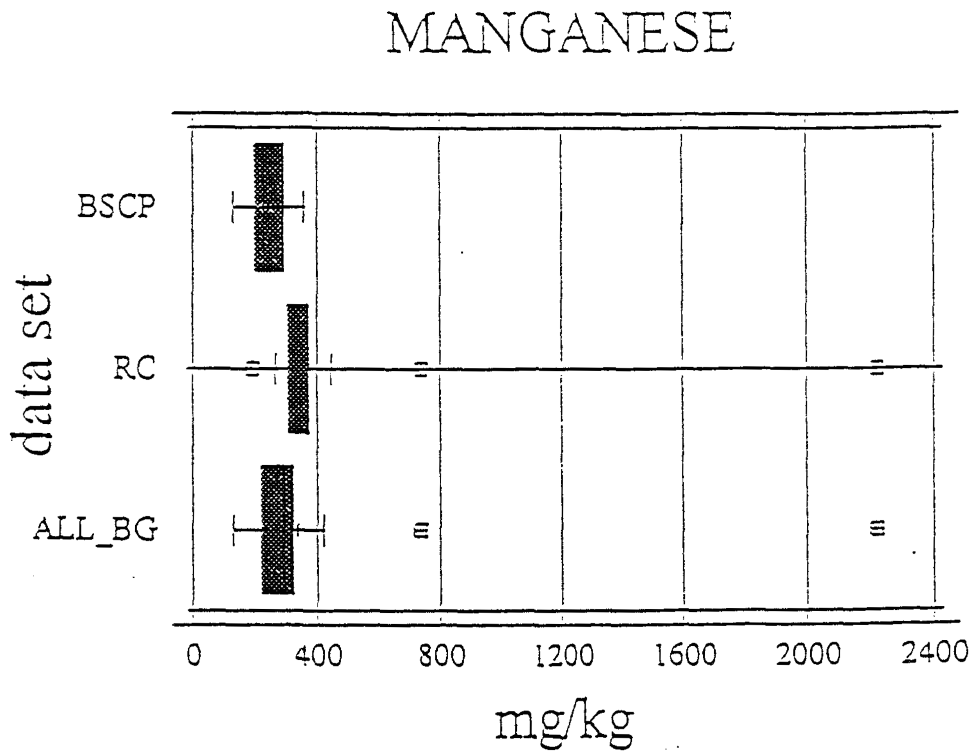
LITHIUM



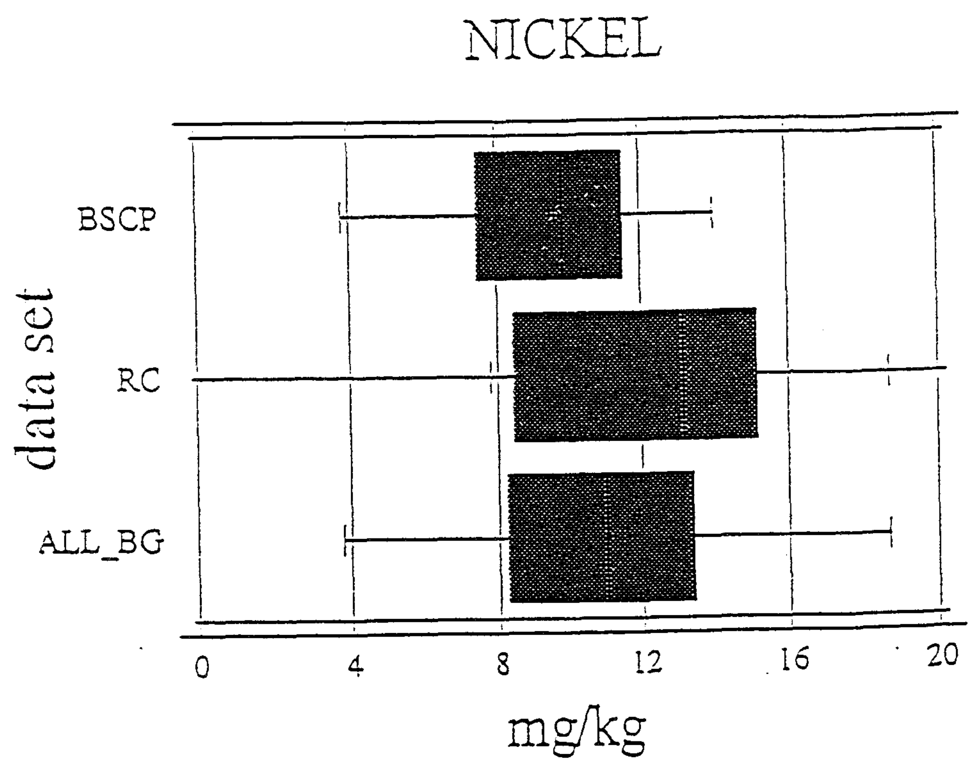
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

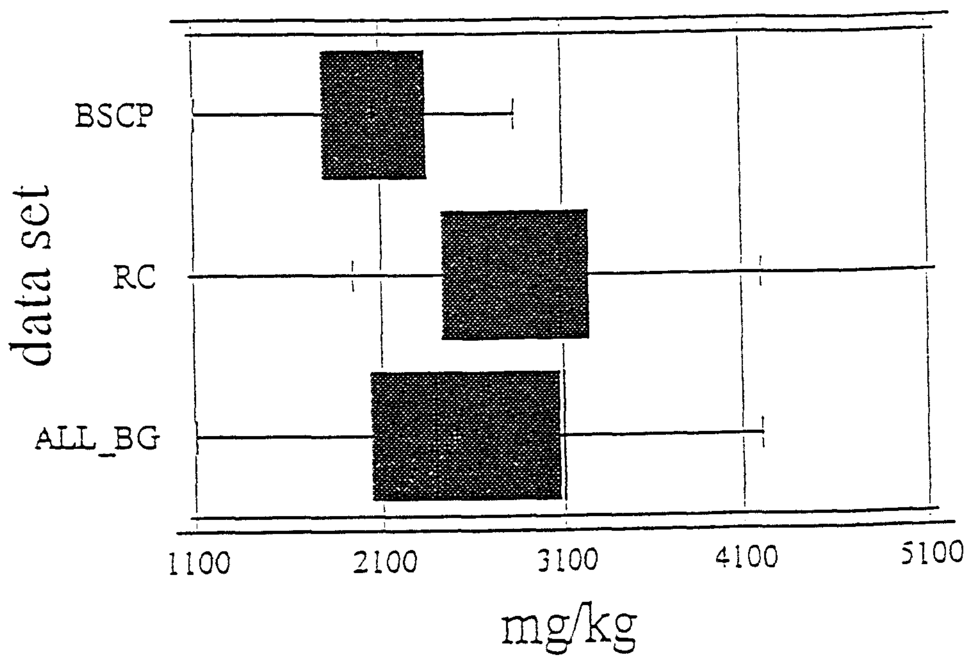


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

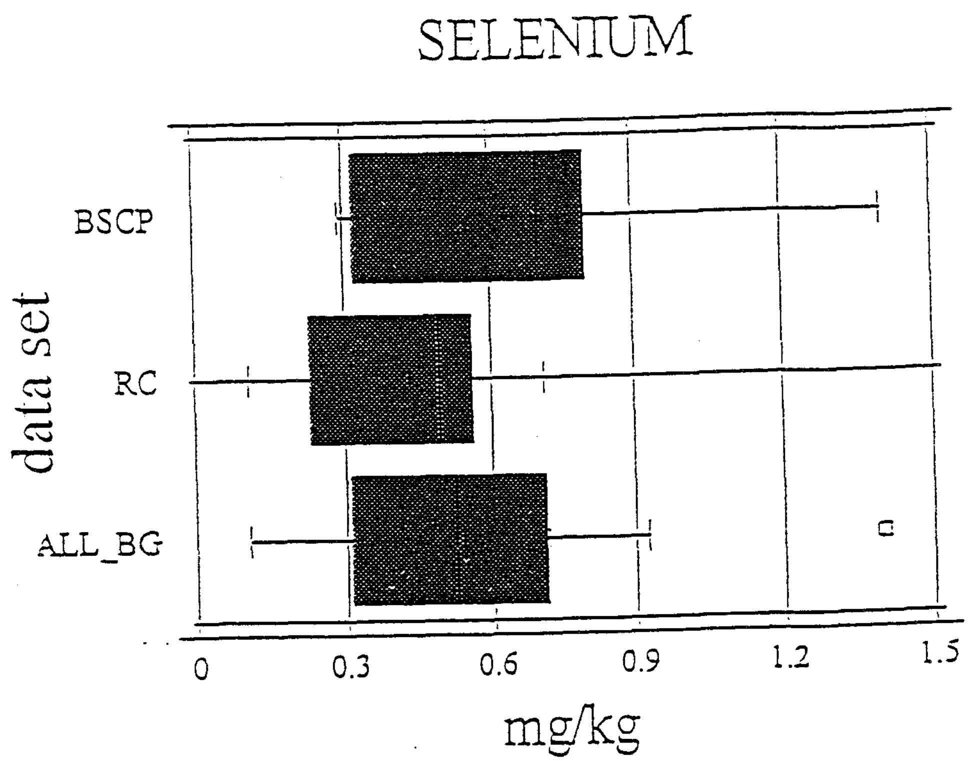


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

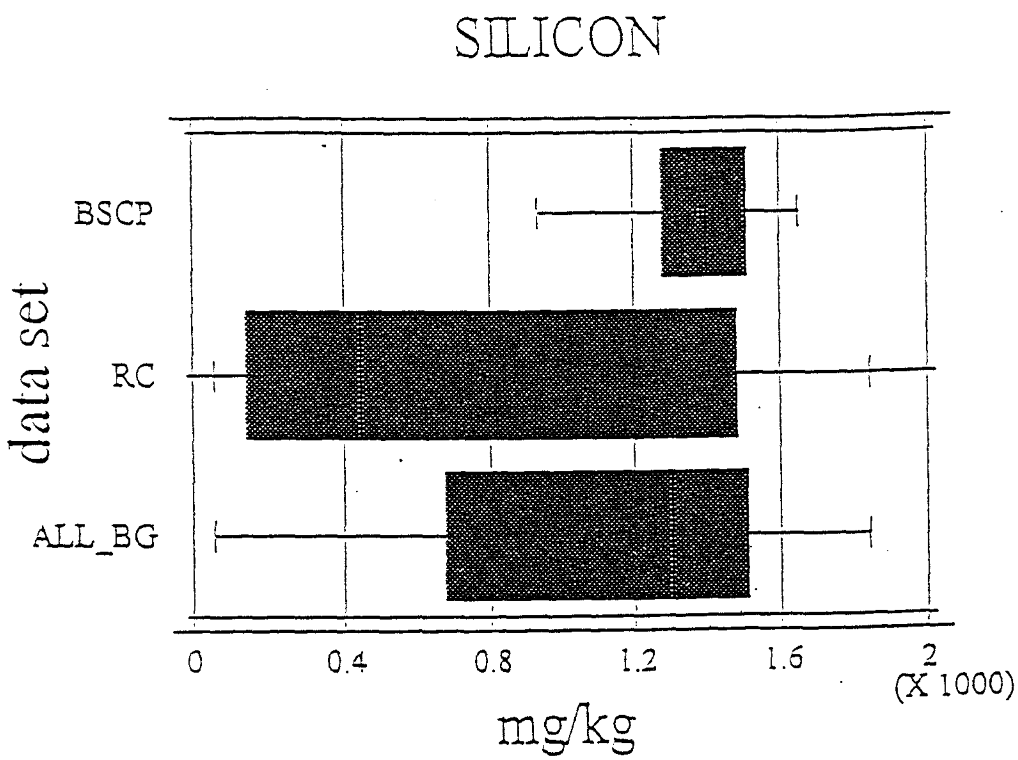
POTASSIUM



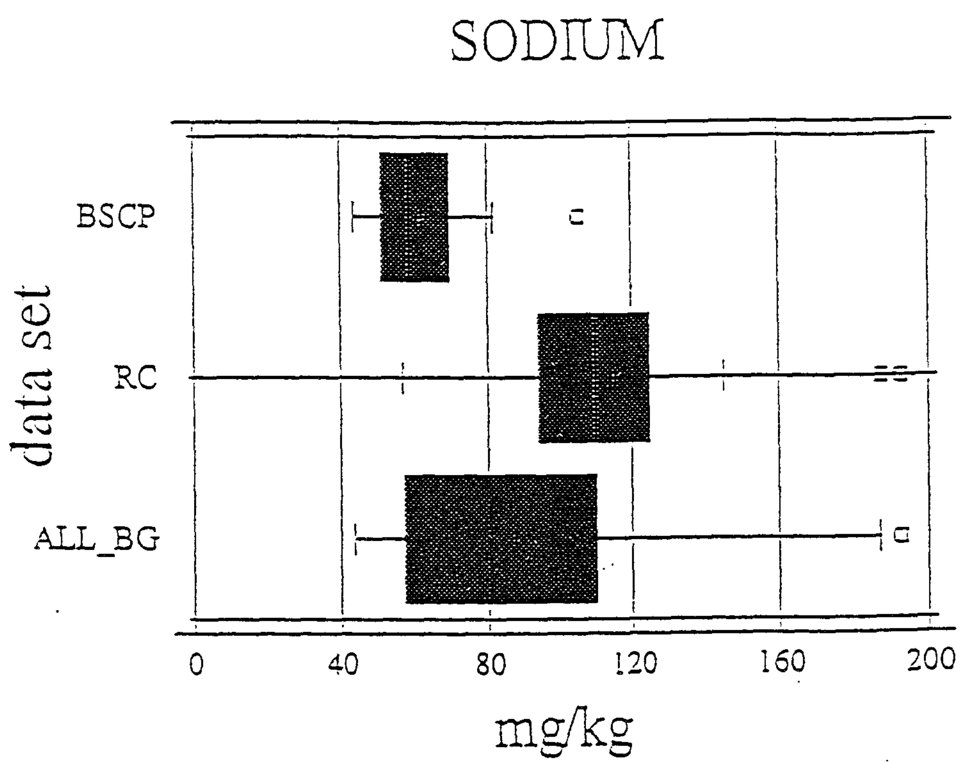
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



Non-detects: BSCP = 39%, RC = 22%, All_BG =30%

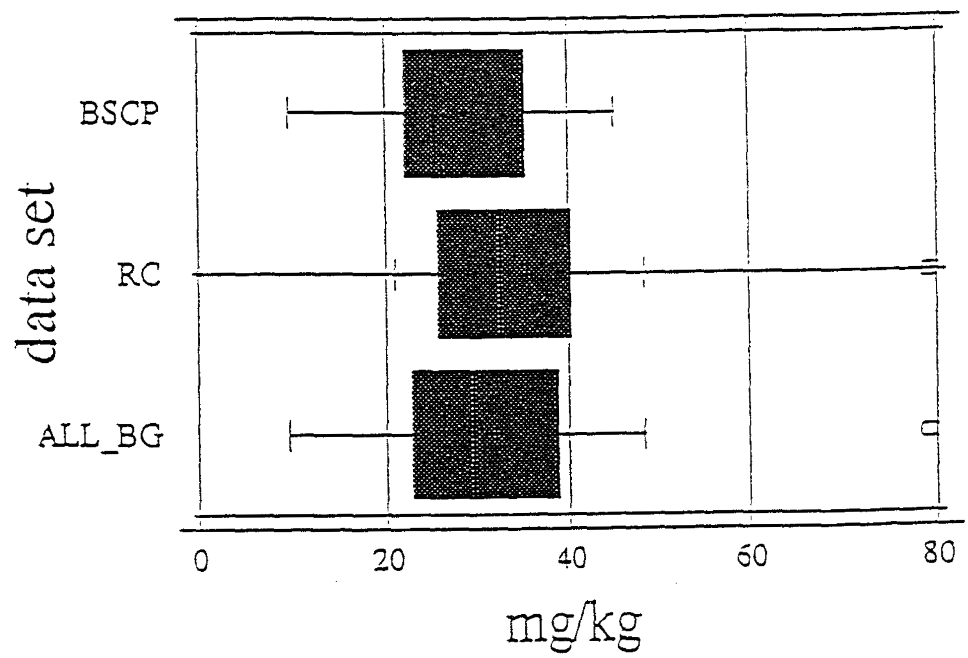


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

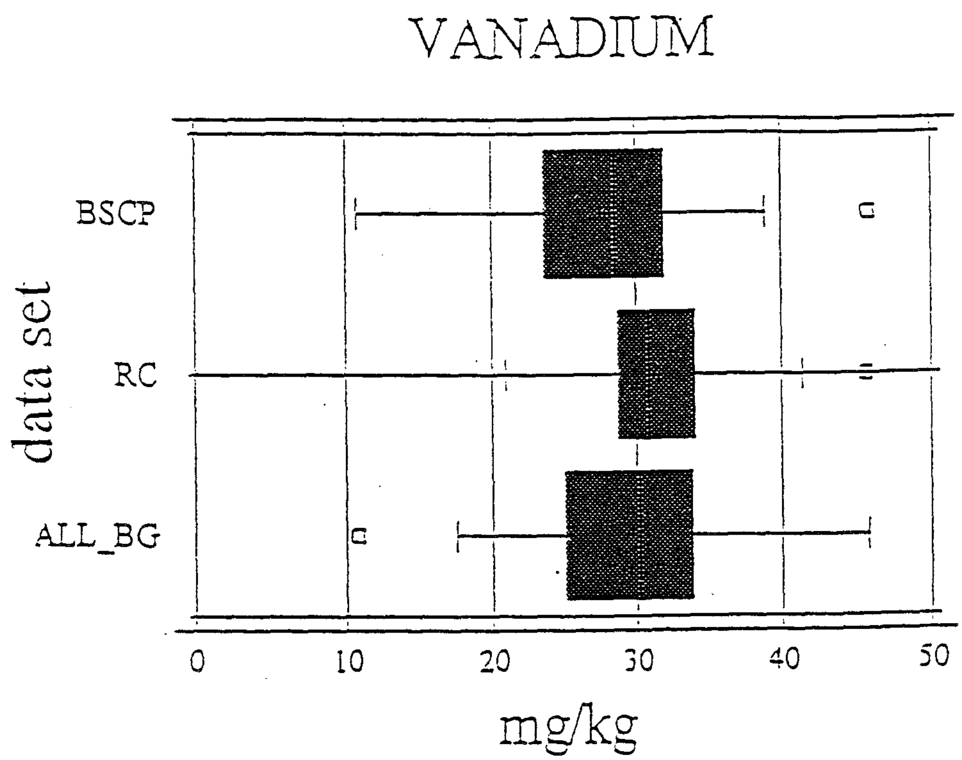


Non-detects: BSCP = 0%, RC = 43%, All_BG =22%

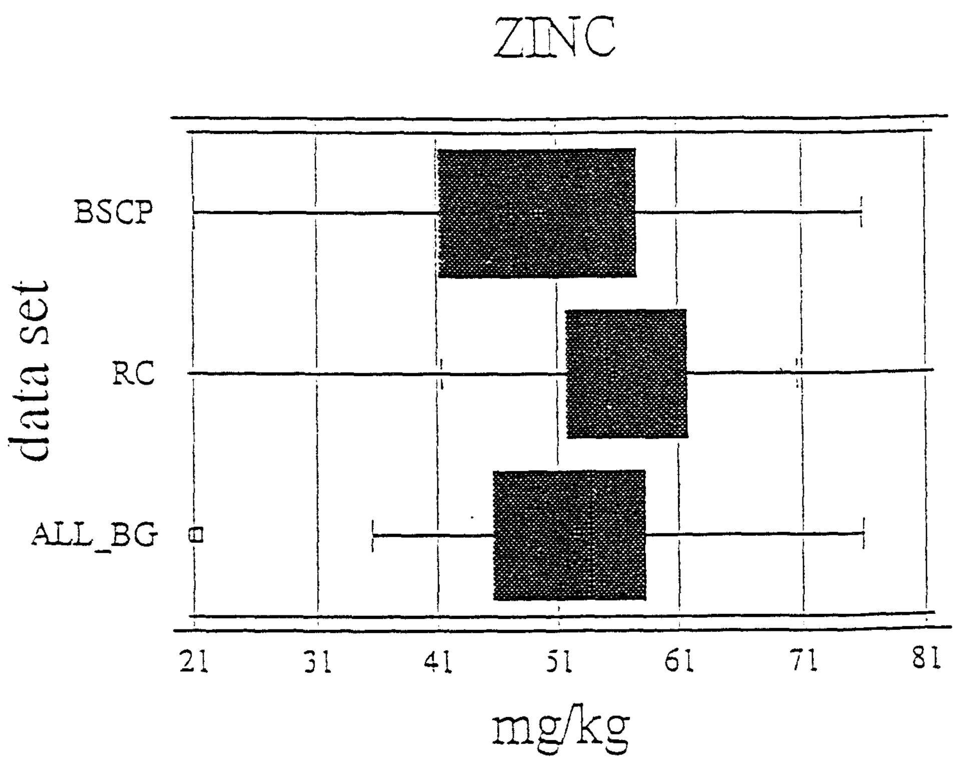
STRONTIUM



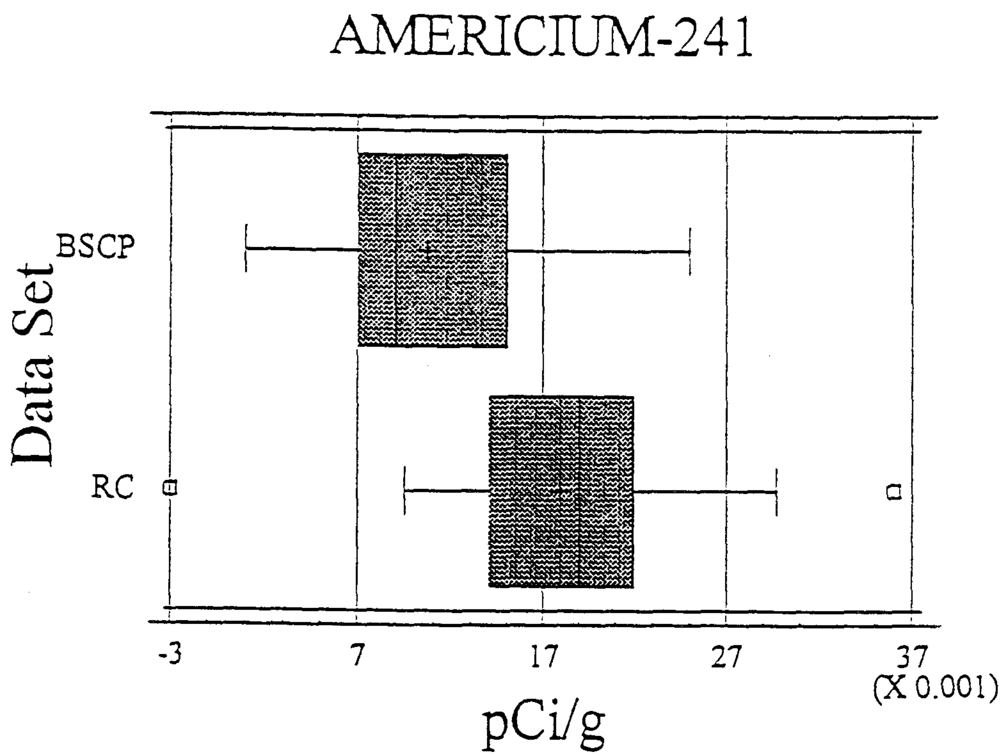
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

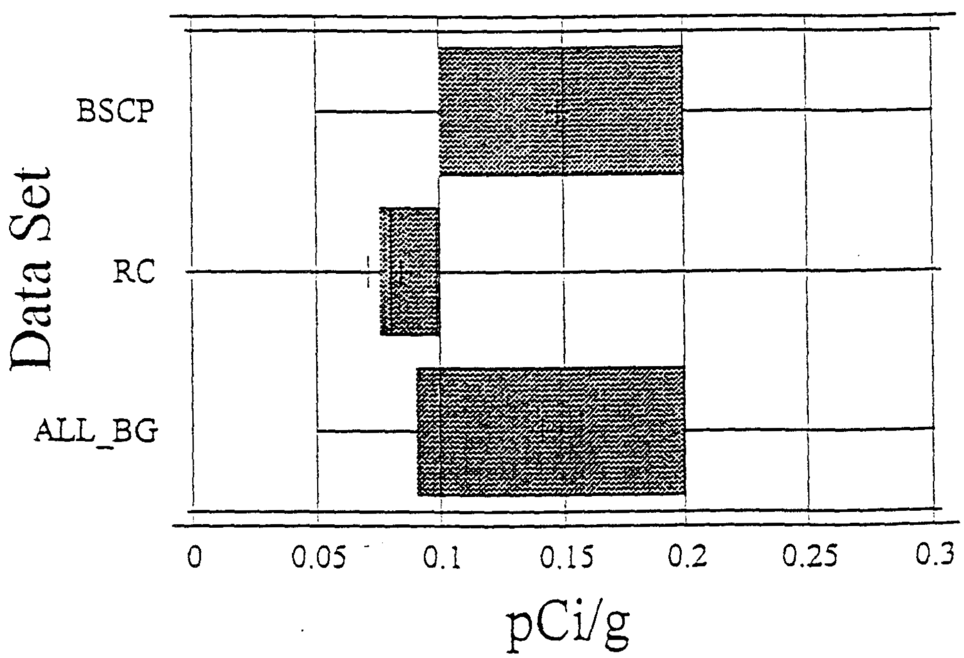


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



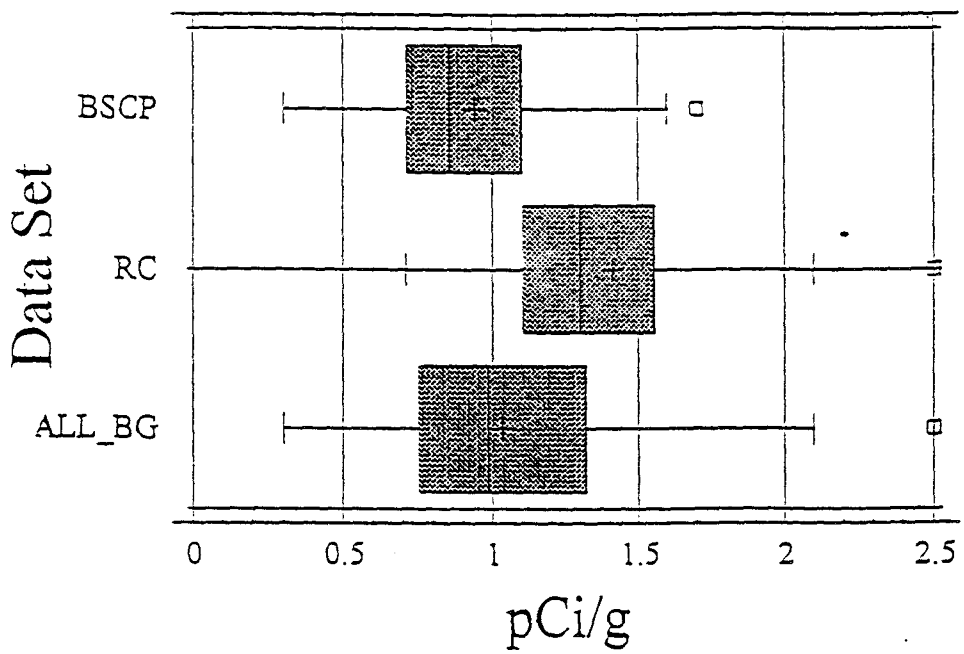
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

CESIUM-134

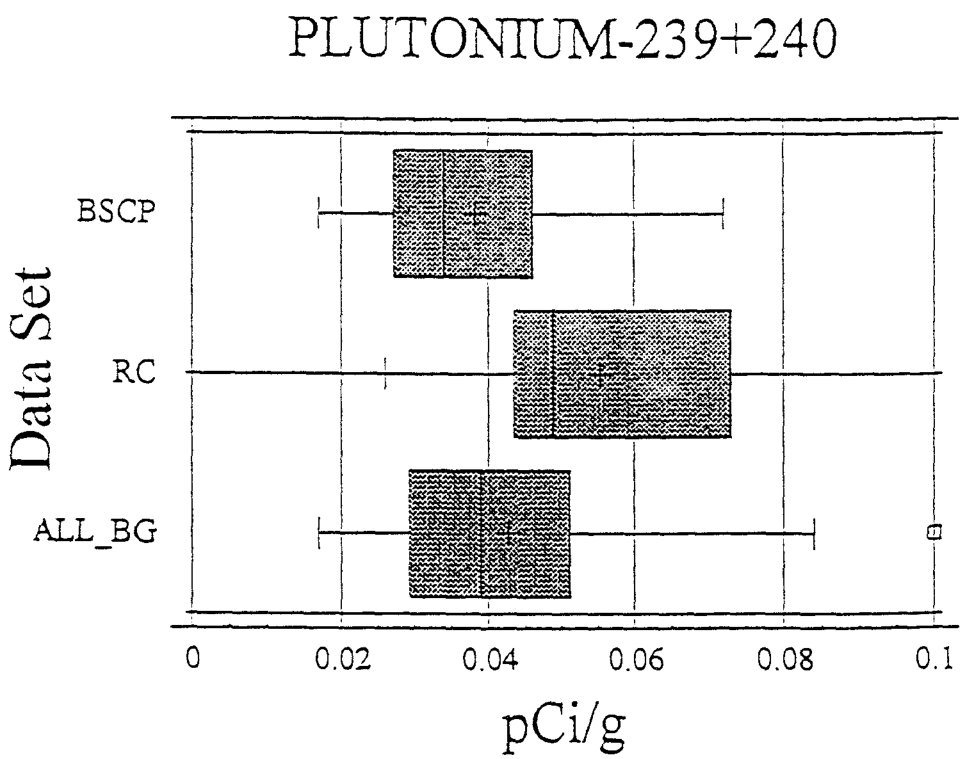


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

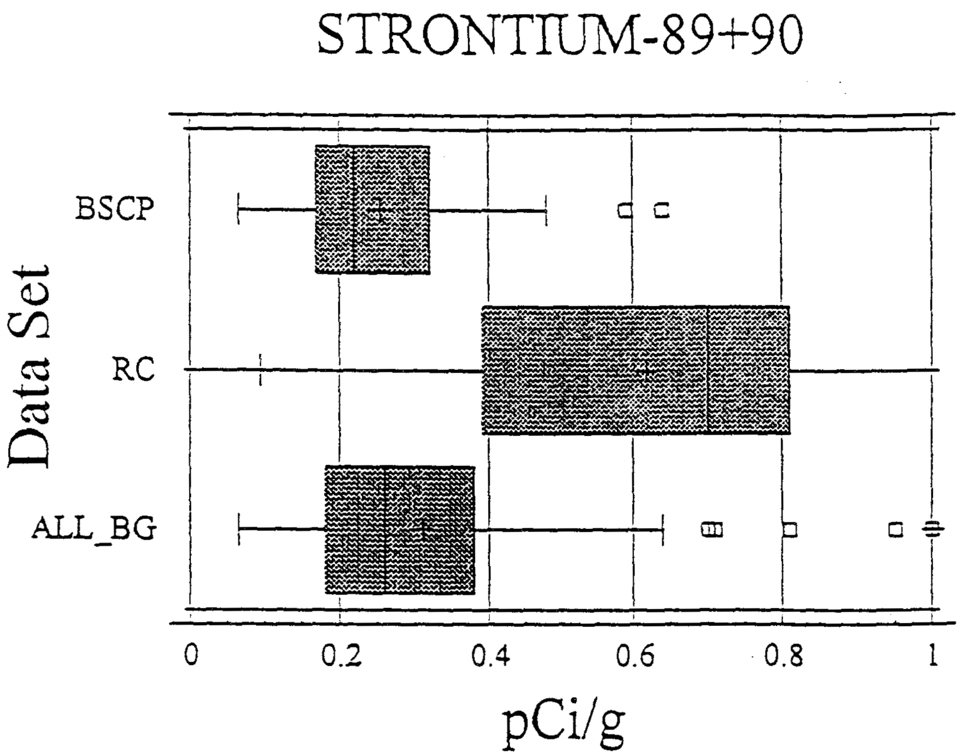
CESIUM-137



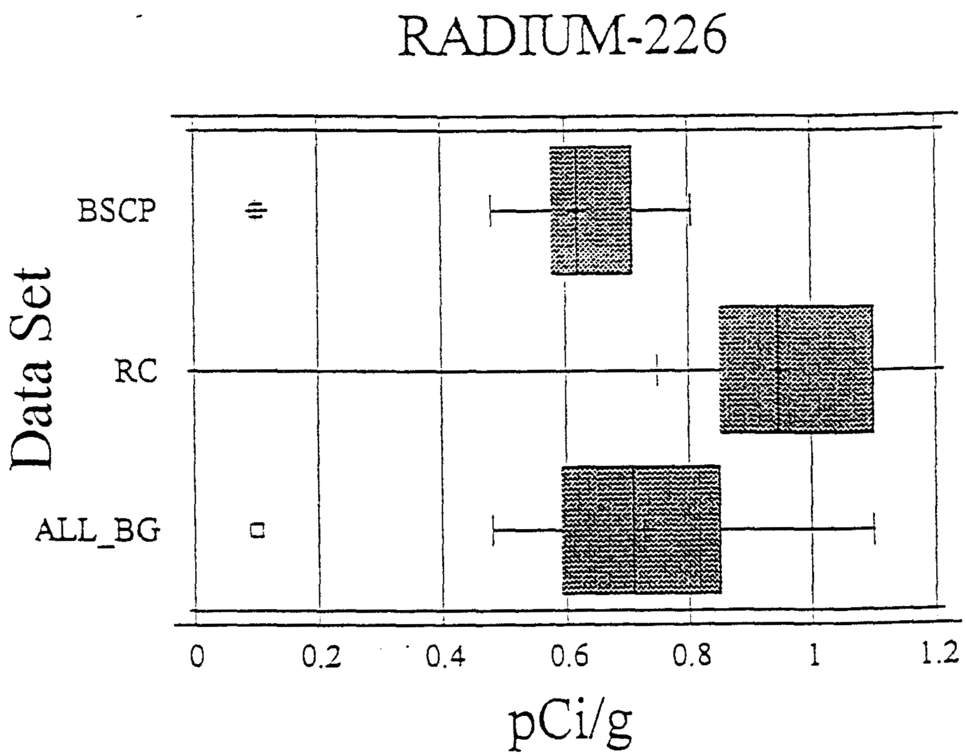
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

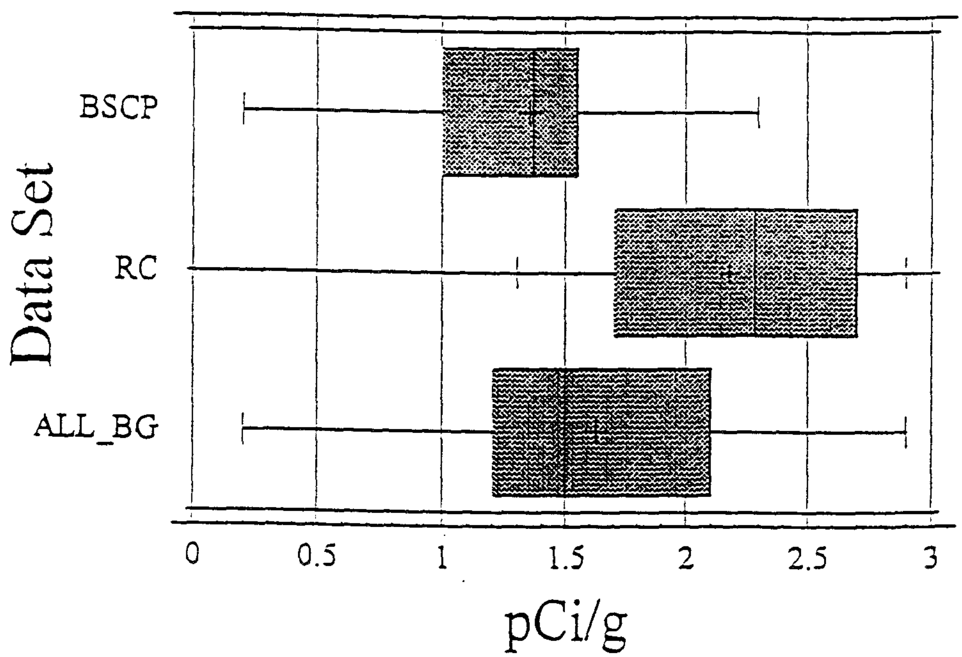


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

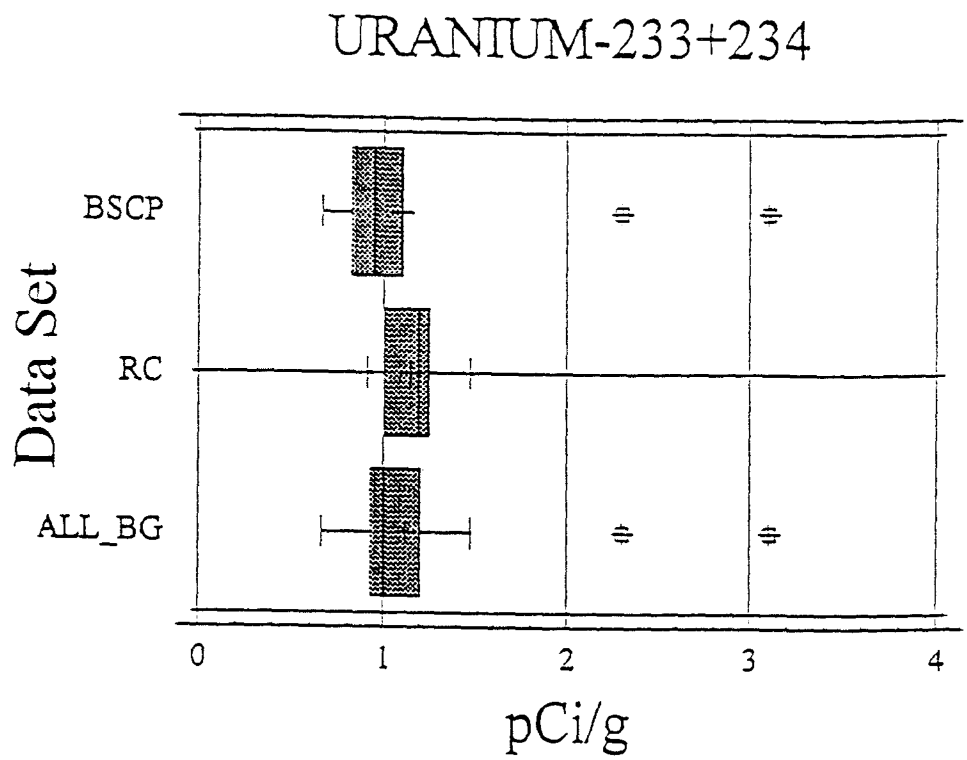


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

RADIUM-228

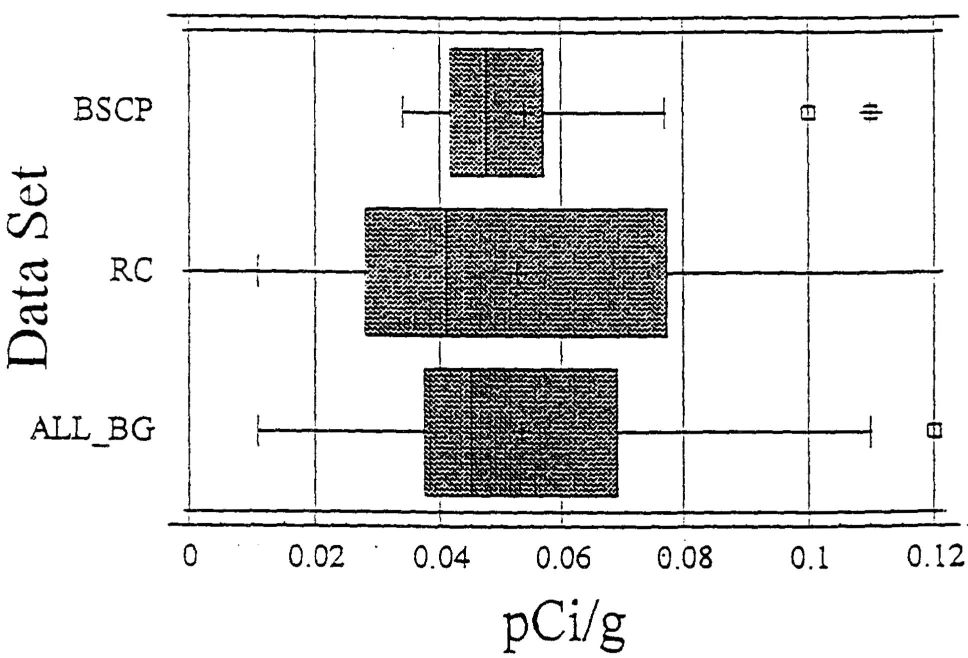


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

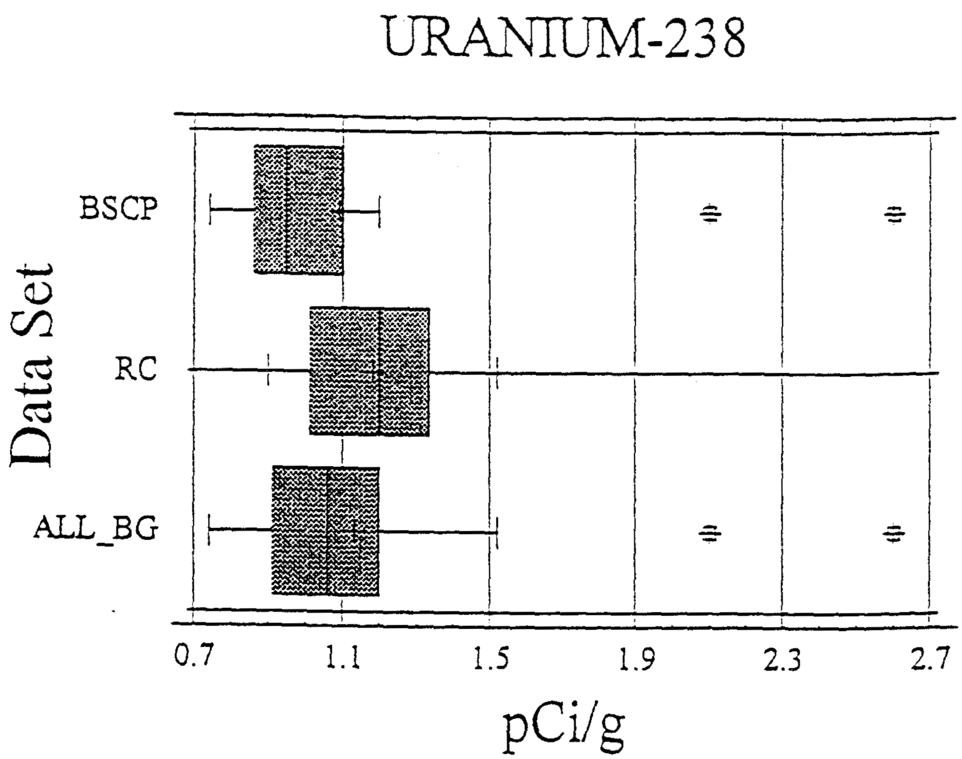


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

URANIUM-235

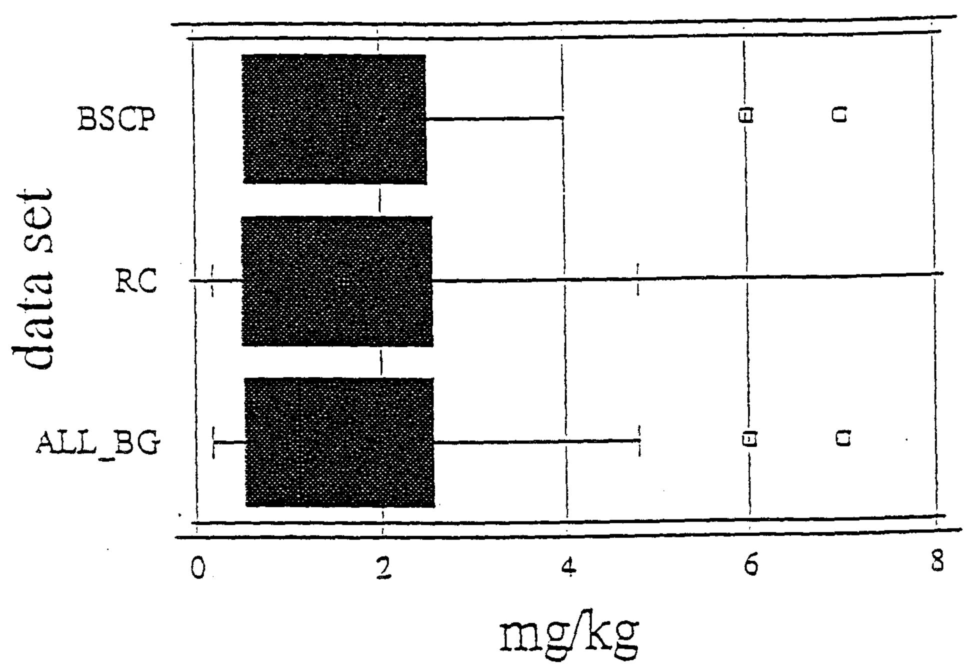


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



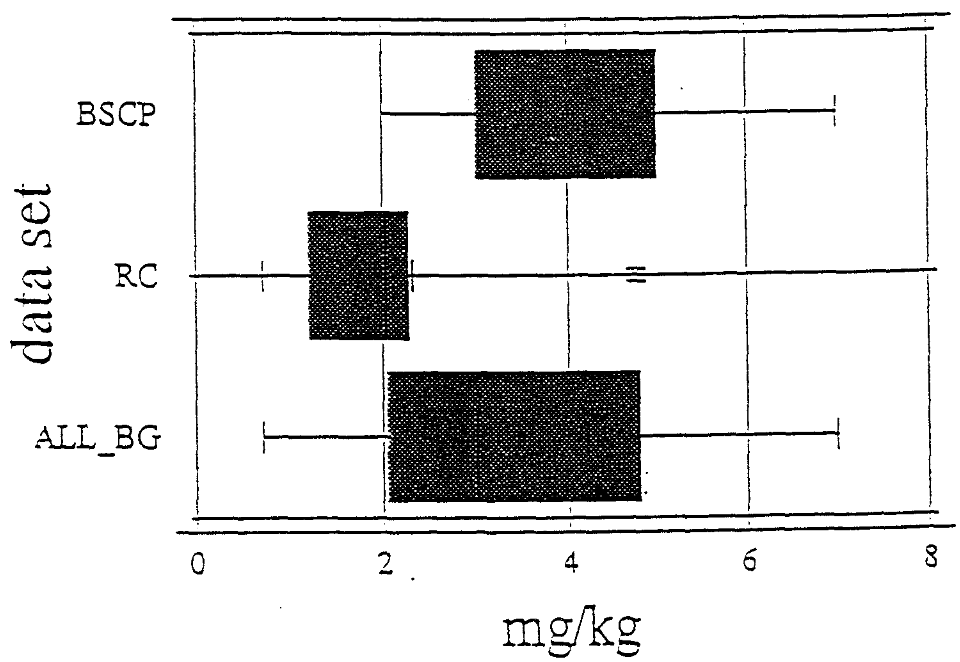
Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

AMMONIA

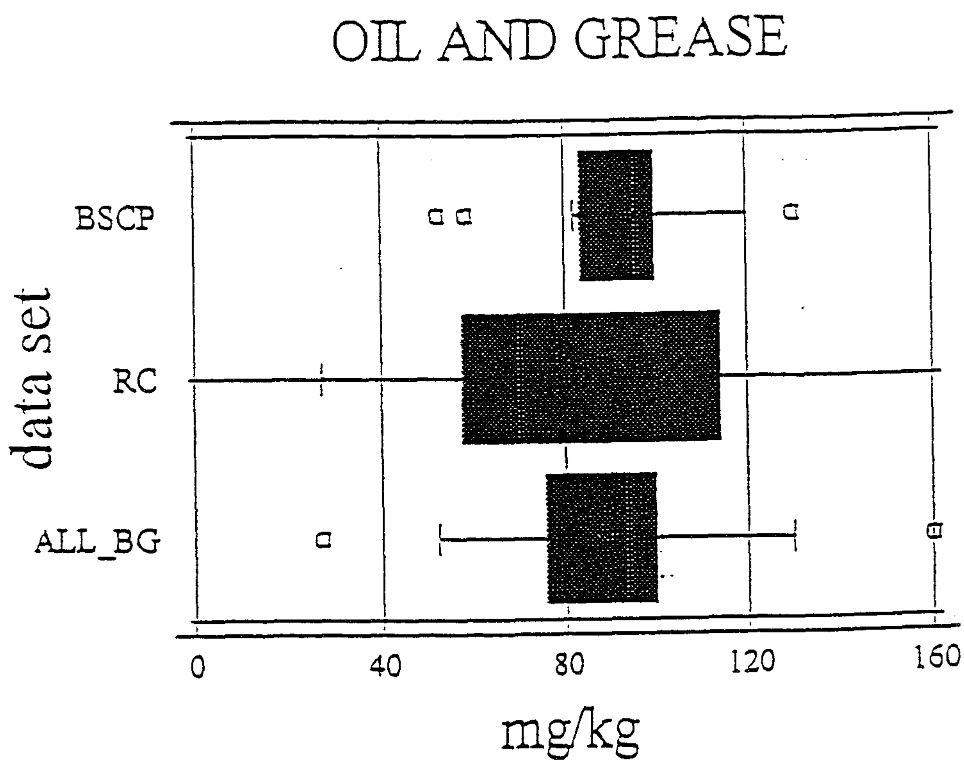


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

NITRATE/NITRITE

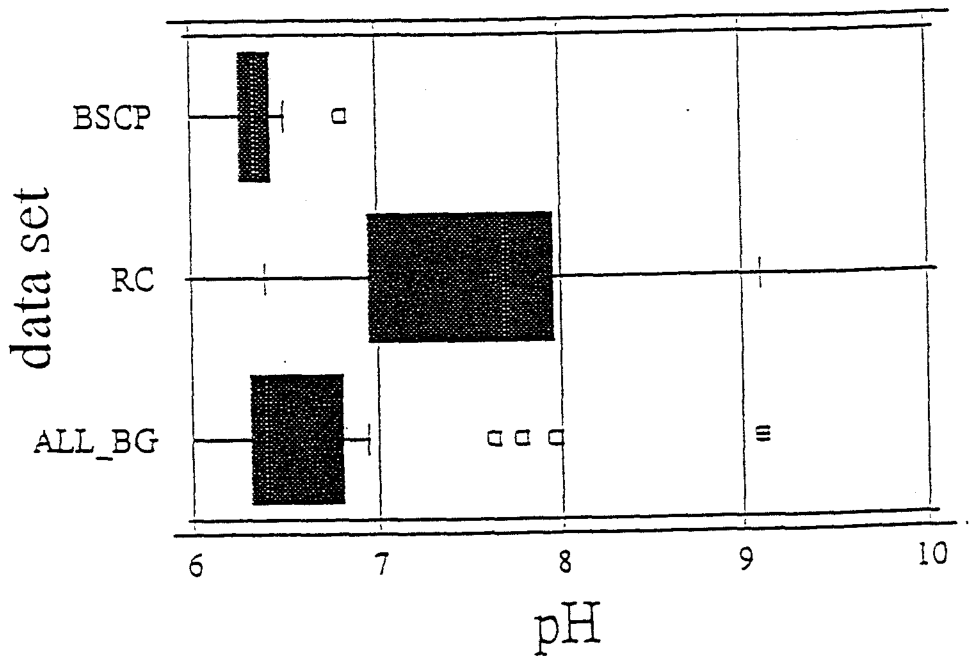


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

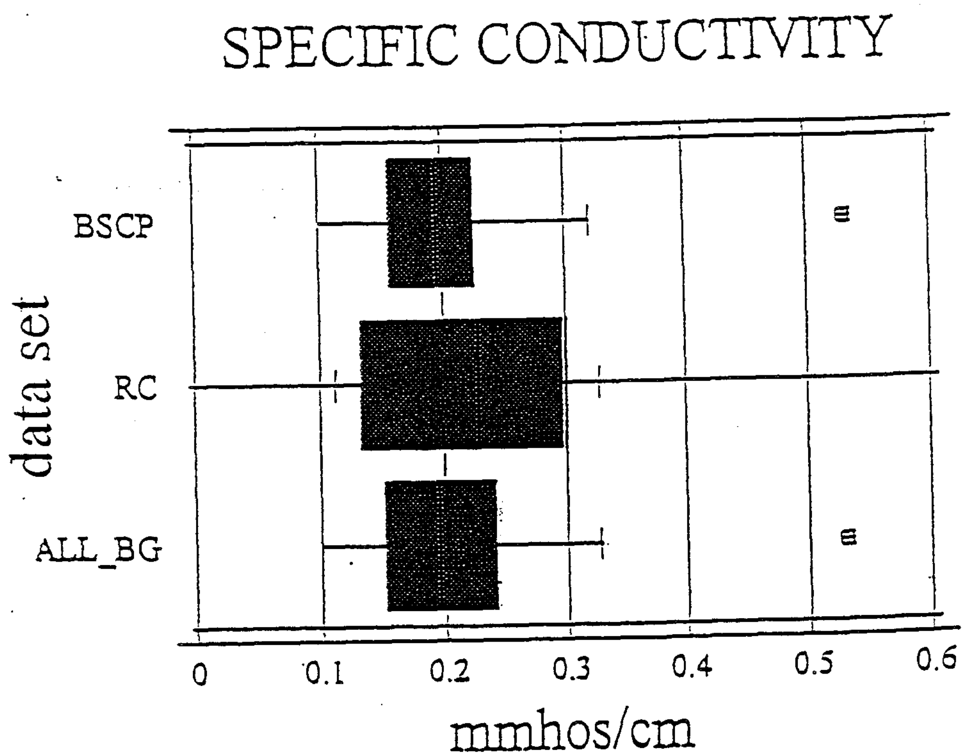


Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

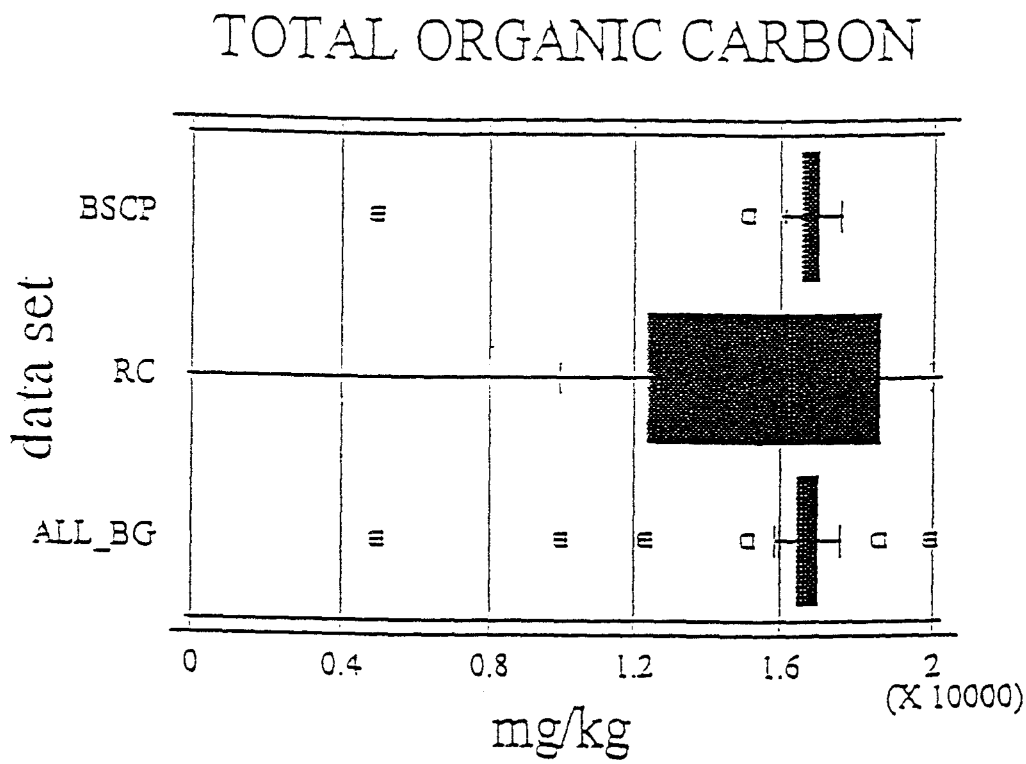
pH



Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%



Non-detects: BSCP = 0%, RC = 0%, All_BG = 0%

EXECUTIVE SUMMARY

The Background Soils Characterization Program (BSCP) study followed the Data Quality Objective (DQO) guidelines established by the U.S. Environmental Protection Agency (EPA). A work plan was prepared and approved by the U.S. Department of Energy (DOE), the EPA, and the Colorado Department of Public Health and Environment (CDPHE).

An exploratory data analysis (EDA) performed during the development of the *Background Soils Characterization Plan* (DOE, 1994) indicated that two sampling efforts were appropriate to characterize background surface soils and augment the existing background data set (i.e., Rock Creek) for the chemicals in the vicinity of the Rocky Flats Environmental Technology Site (RFETS). Those sampling efforts were completed as follows:

- Group 1 (Metals, Naturally Occurring Radionuclides, and Organic Compounds): Twenty samples were collected just north of RFETS from soils that are similar in topography, parent material, and historic use to soils on RFETS. These samples were analyzed for naturally occurring radionuclides (uranium and radium isotopes), metals and selected inorganic constituents, semivolatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs).

- Group 2 (Fallout Radionuclides): Fifty samples were collected from remote (offsite) locations along the Colorado Front Range for measuring activities of fallout radionuclides (americium-241, cesium-134, cesium-137, strontium-89+90, and plutonium-239+240) in surface soils.

Summary statistics for metals and certain other inorganic constituents, fallout radionuclides, SVOCs, pesticides, herbicides, PCBs, and selected physical parameters for background surface soils sampled and analyzed in the BSCP study are presented in Tables E-1 through E-3. Summary statistics for the Rock Creek study are presented in Tables E-4 through E-6. Discussion of these results and a comparison of the BSCP data set with the Rock Creek data set (which has been used as the background data set to date), are presented in Section 4.0 of this report. Data from the BSCP and Rock Creek studies were also compared with data from existing regional background studies.

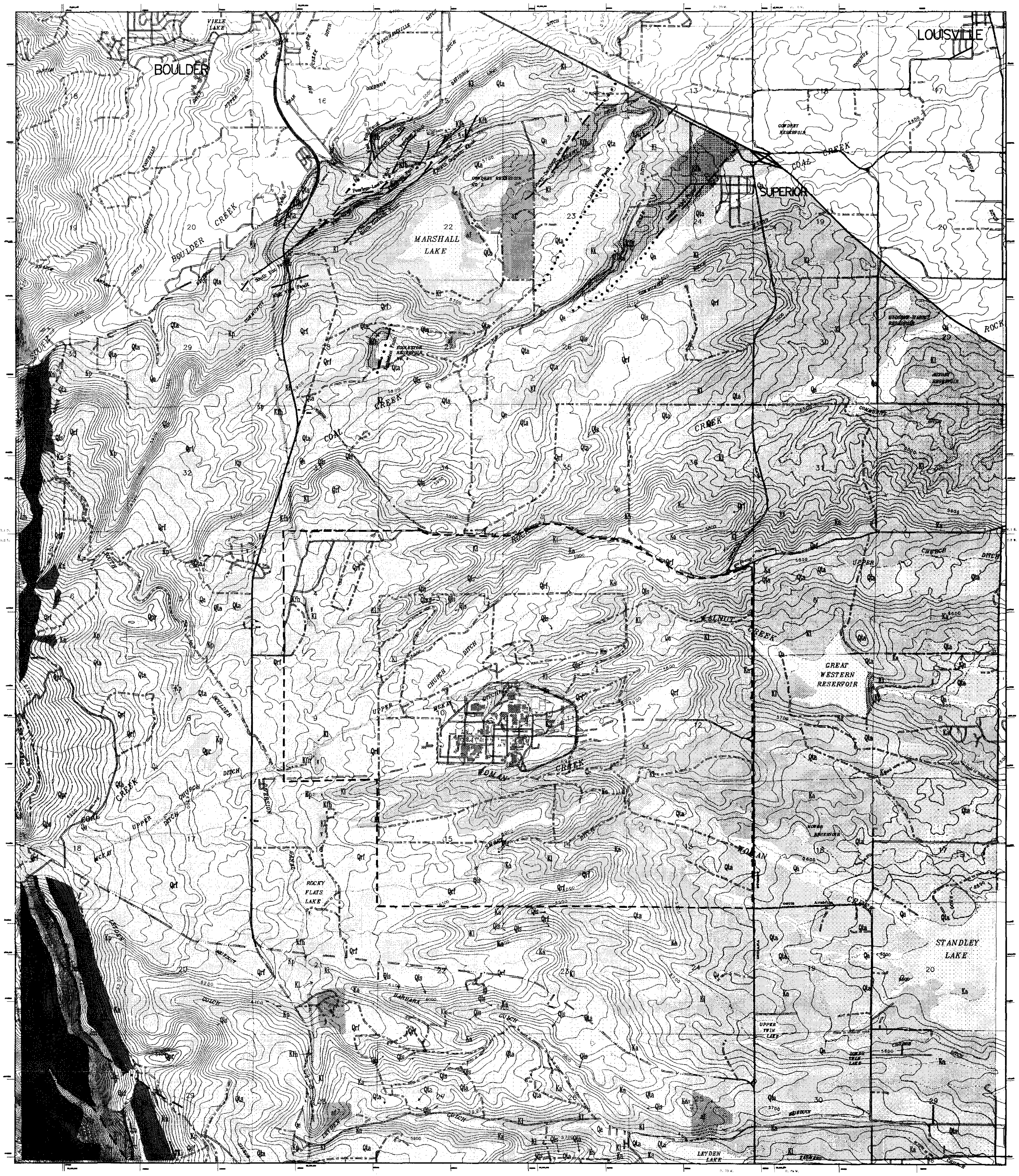
Despite minor differences between the Rock Creek and BSCP data for naturally occurring (i.e., Group 1) analytes, both the Rock Creek and BSCP data sets appear to be subsets of the "true" background population. The BSCP results for Group 1 analytes verify the validity of the Rock Creek data as representative of background conditions for these analytes in surficial soils.

Although the mean and maximum activities for plutonium in Rock Creek samples are slightly higher than those for the BSCP samples, the Rock Creek data are within the range of a recently completed background study by Colorado State University. When the error terms for the analyses are considered (see Appendix B for data printout), there is little real difference in the values.

Either the Rock Creek or BSCP data may be used for future comparison studies. The BSCP data set may be preferred because of the well-documented work plan, which followed EPA's DQO process, and the exploratory data analysis, which determined the sample size necessary for the chemical characterization of surficial soils.

An additional objective not included in the work-plan development, but considered helpful for present and future remediation projects determined the mass-isotope ratio of plutonium-239/plutonium-240 for 12 remote (i.e., Group 2) samples. These results are included as Appendix A of this report. The average plutonium-240/plutonium-239 ratio for the 12 samples was 0.155 +/- 0.019; the average plutonium-241/plutonium-239 ratio was determined to be 0.0030 +/- 0.0004. These mass-isotope ratios for regional fallout for plutonium can be used in future studies at RFETS, as well as in other regional studies of fallout radionuclides.

Because the plutonium-240/plutonium-239 ratio for fallout (0.155) is significantly different than the that for plutonium processed at RFETS (240/239 ratio = 0.065), determination of the plutonium-240/plutonium-239 atom ratios in soil samples could be used to separate the plutonium into its global fallout component and its RFETS component.



GEOLOGIC MAP OF ROCKY FLATS PLANT AND VICINITY
JEFFERSON AND BOULDER COUNTIES, COLORADO

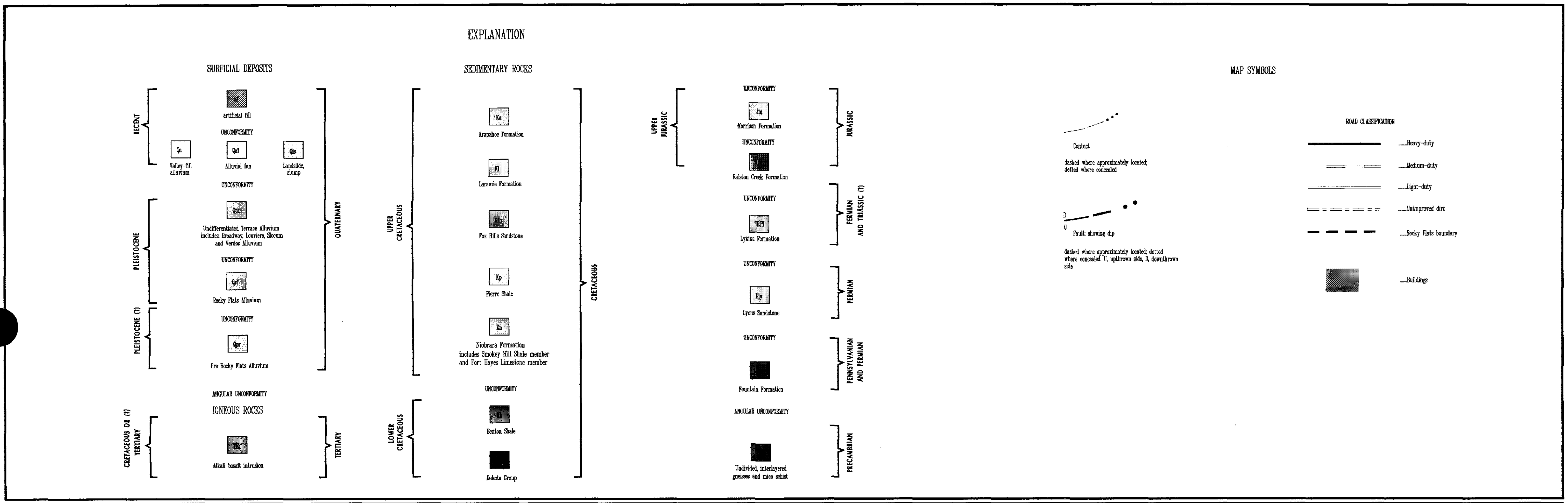
March, 1992

Prepared for E.G. & G. Rocky Flats, Inc.

Projection: UTM Zone 13

CONTOUR INTERVAL 20 FEET

Figure 1-4a

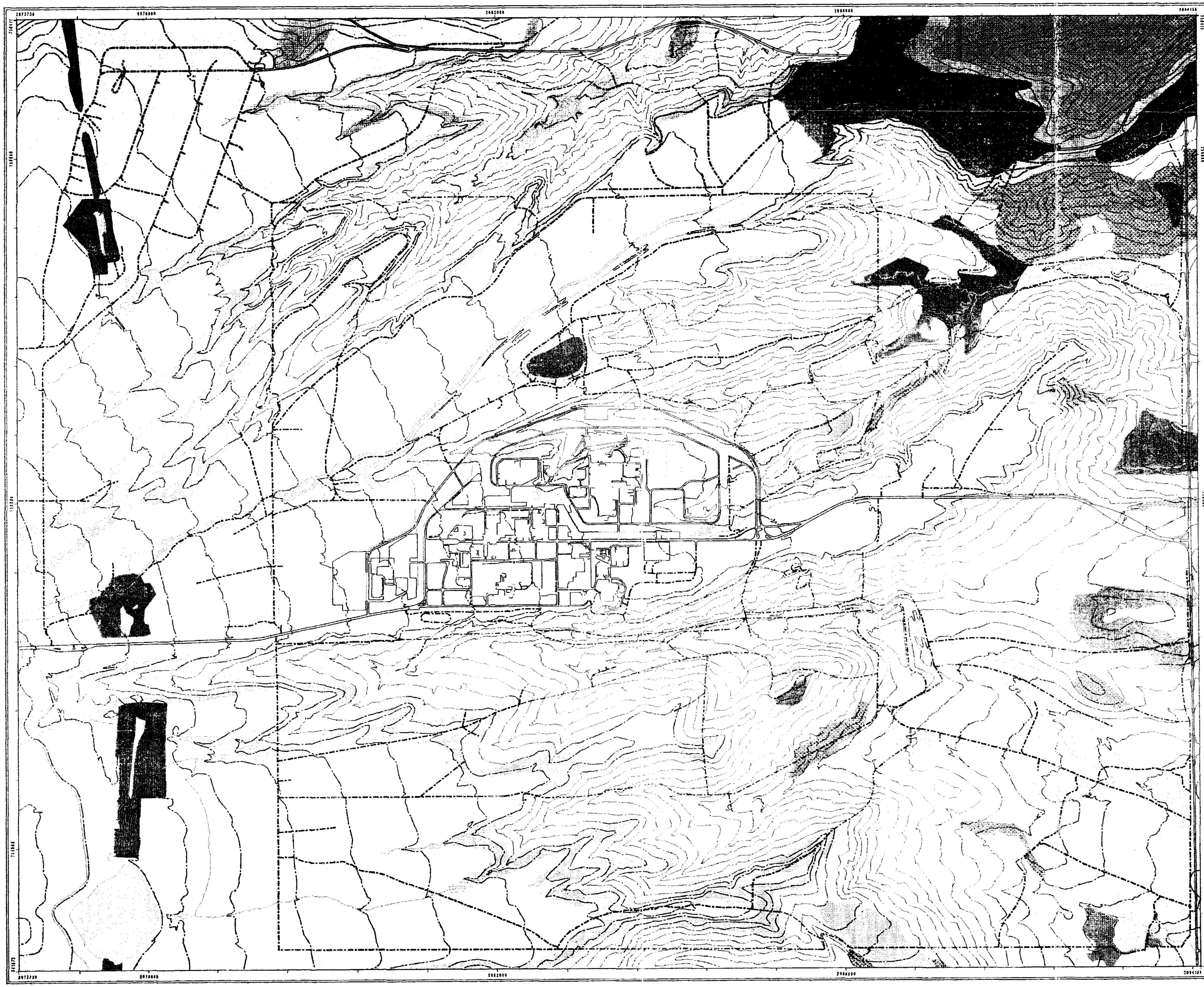


LEGEND FOR
GEOLOGIC MAP OF ROCKY FLATS PLANT AND VICINITY
JEFFERSON AND BOULDER COUNTIES, COLORADO

March, 1992

Prepared for E.G. & G. Rocky Flats, Inc.

Figure 1-4b



U.S. DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

ROCKY FLATS PLANT

SOIL MAP UNITS

(SOIL SERIES)

- Denver-Kutch-Midway clay loams
- Englewood clay loams
- Flatirons very stoney sandy loam
- Haverson loam
- Leyden-Primen-Standley cbly clay loam
- McClave clay loam
- Midway clay loam
- Nederland very cobbly sandy loam
- Nunn clay loam
- Pits, gravel
- Rock outcrop, Sedimentary
- Valmont clay loam
- Willowman-Leyden cobbly loam

Scale = 1 : 20160
1 inch = 1680 feet

500 0 1000 2000 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

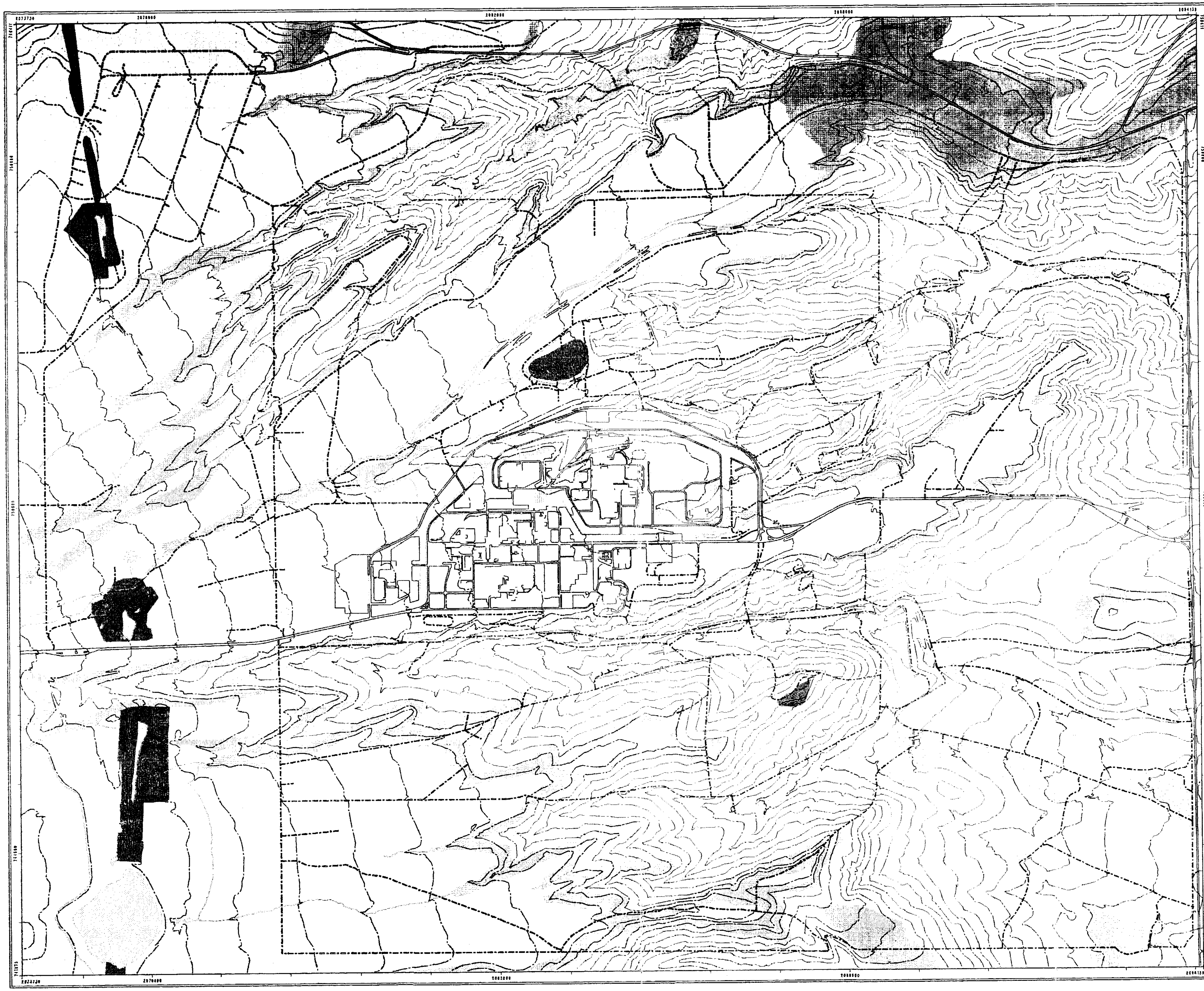
Prepared by:

EG&G ROCKY FLATS

Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

Date: April 08, 1994

FIGURE 1-7



U.S. DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

SOIL TAXONOMIC GREAT GROUPS

- f, mont Argiustolls and similar
- c-sk, mont, mesic, Aridic, Paleustolls
- Torrifluvents, Haplaquolls, and similar
- l-sk, Aridic Argiustolls and similar
- Pits, gravel
- Rock outcrop, Sedimentary

Scale = 1 : 20160
1 inch = 1680 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

Prepared by:

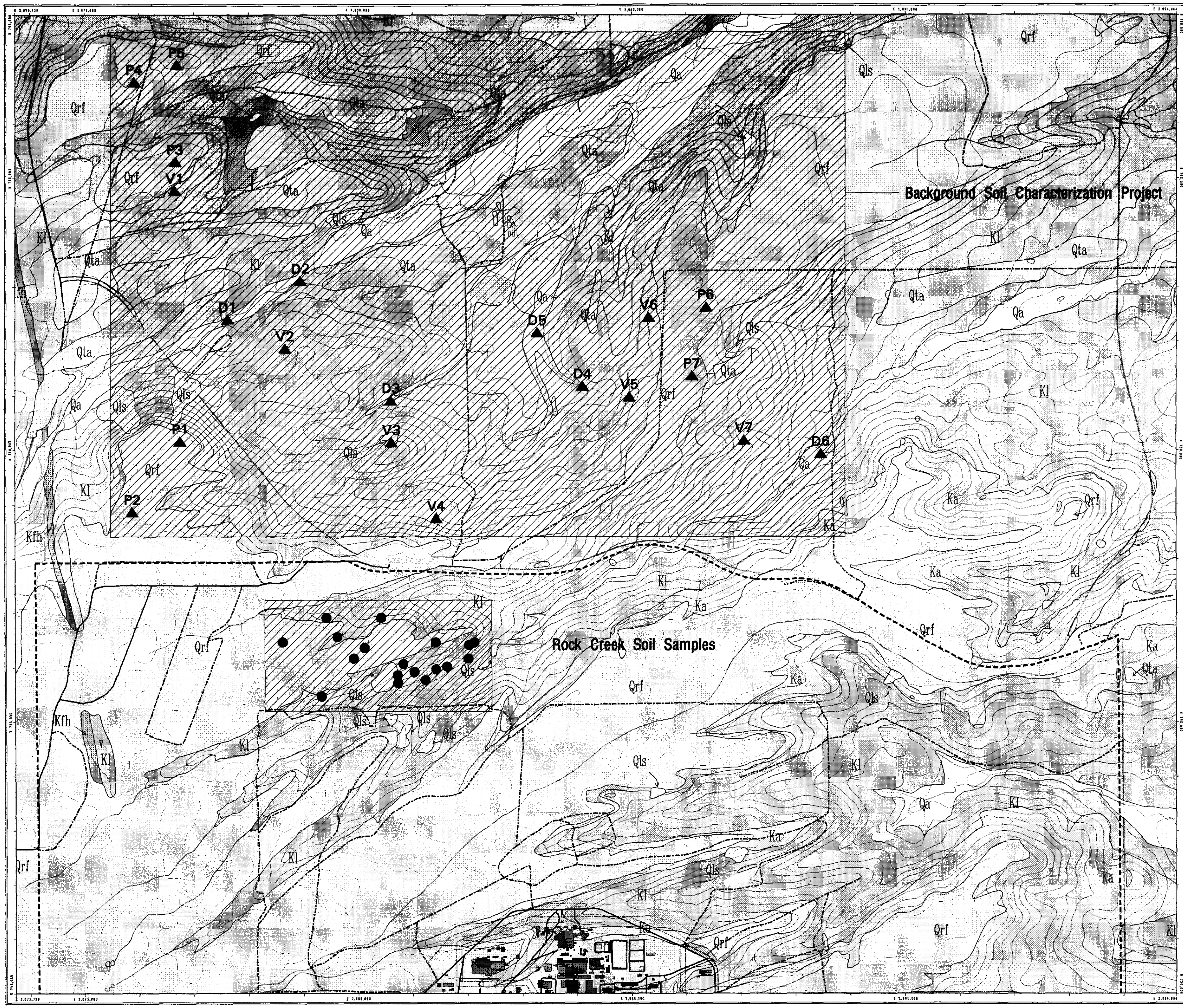
EG&G ROCKY FLATS

Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

FIGURE 1-8

Surface Soil Sampling Locations

Figure 2-2



- ● Rock Creek Soil Samples
- ▲ Background Soil Characterization Project
- af - Artificial fill
- Ka - Arapahoe Formation
- Kfh - Fox Hills Sandstone
- Kl - Laramie Formation
- Kp - Pierre Shale
- Qa - Valley-fill Alluvium
- Qls - Landslide, slump
- Qrf - Rocky Flats Alluvium
- Qta - Undifferentiated Terrace Alluvium

Standard Map Features

- Buildings or other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Contours (100' Intervals)
- Rocky Flats boundary
- Heavy duty paved roads
- Medium duty paved roads
- Light duty paved roads
- Dirt roads

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc. - 1991.
Hydrology provided by USGS - (date unknown)

Scale = 1 : 21620
1 inch represents approximately 1818.33 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

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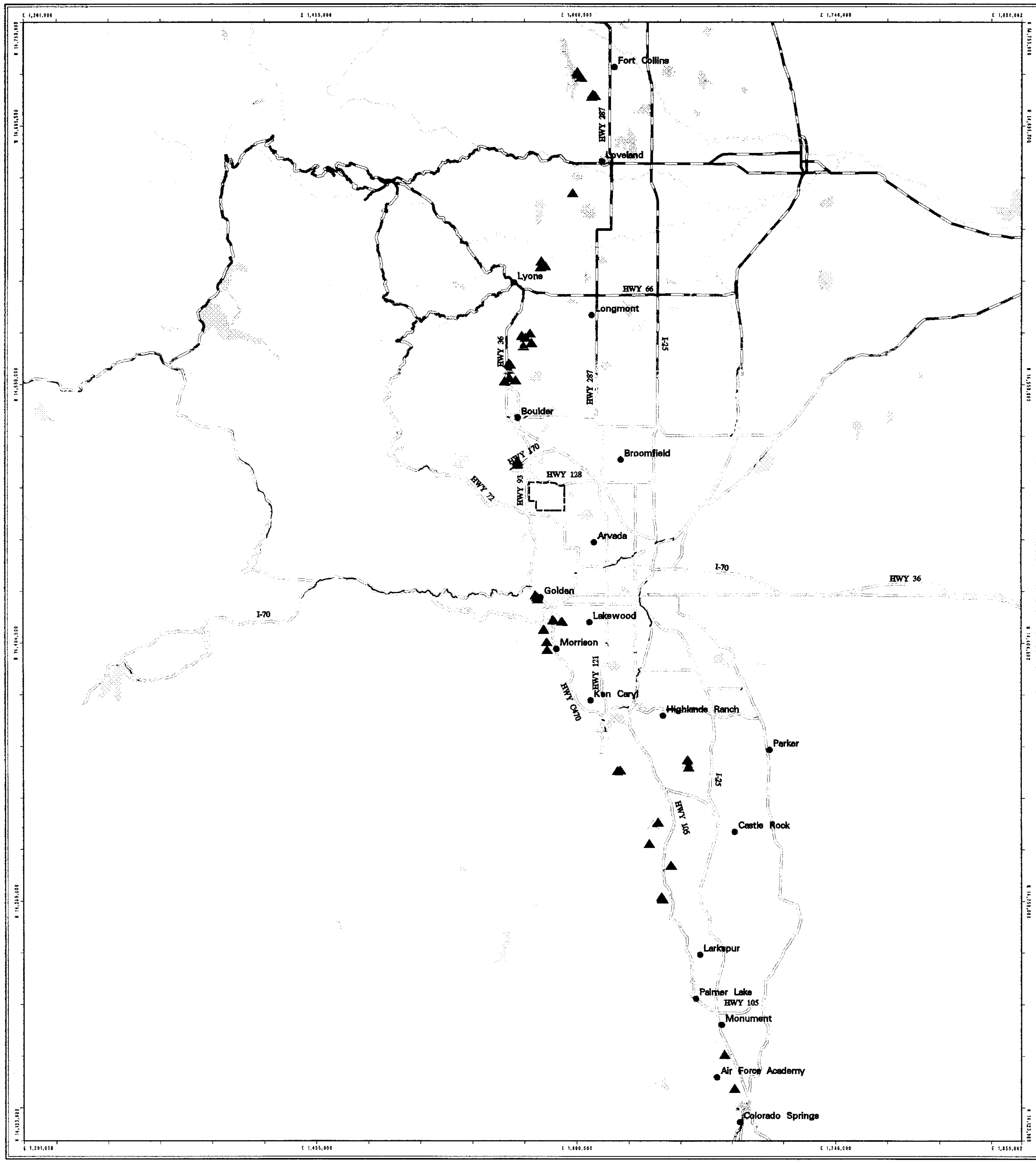
MAP ID: geo-samp-11x17

January 18, 1996



Remote Soil Sampling Locations

Figure 2-3

- Pu 239 & 240
- Pu 239 & 240, also plutonium isotope ratios
- Cities, towns, and places
- Highways
- Major rivers
- Rocky Flats boundary
- Lakes

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr., EG&G Rocky Flats, Inc. - 1991.
Hydrology provided by USGS - (date unknown)
Roads, rivers, cities, places, towns Datasets West, Harrison Resource Corp. - 1994.

0 10 20 miles
0 10 20 30 km

Projection: UTM 13 Feet
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

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MAP ID: remote-samp

May 15, 1995

/home/r51845/projects/ou2/whiting/remote-samp-11x17.aml